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June, 1977

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 74 No. 1

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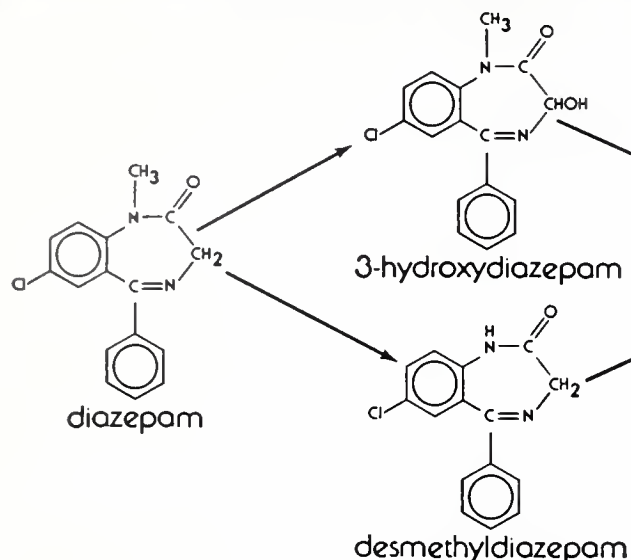
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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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W. PAYTON KOLB

Little Rock

President

Arkansas Medical Society

1977-1978

PROCEEDINGS
101st Annual Session
ARKANSAS MEDICAL SOCIETY
Little Rock
April 24-27, 1977

First Meeting
HOUSE OF DELEGATES

The first meeting of the House of Delegates was called to order at 1:10 P.M. by Speaker Amail Chudy. Invocation was by Ken Lilly.

The Executive Vice President, C. C. Long, called the roll of delegates. The following officers, and members seated as delegates by action of the House were present:

ASHLEY, Donald L. Toon; BAXTER, John F. Guenther; BENTON, Richard N. Pearson; BOONE, Joe B. Wilson; BRADLEY, George F. Wynne; CHICOT, J. R. Russell; CLARK, R. Jerry Mann; CLEBURNE, William M. Wells; CRAIGHEAD-POINSETT, Frank M. James, Joe Verser; CRAWFORD, Millard C. Edds; CRITTENDEN, Milton D. Deneke; CROSS, K. E. Beaton; DALLAS, John H. Delamore; DREW, J. P. Price; FAULKNER, Jimmie J. Magie; GARLAND, Gaither C. Johnston, Ronald J. Bracken, James L. Gardner; GRANT, Curtis B. Clark; GREENE-CLAY, Richard O. Martin, J. Larry Lawson; HEMPSTEAD, James W. Branch, Sr.; INDEPENDENCE, Jim E. Lytle; JEFFERSON, Banks Blackwell, George V. Roberson, Harold J. Morris; JOHNSON, Boyce W. West; LAWRENCE, Ted S. Lancaster; LEE, Dwight W. Gray; LOGAN, James Harper Bledsoe; MISSISSIPPI, Merrill J. Osborne; MONROE, N. C. David, Jr.; OUACHITA, Cal Sanders; PHILLIPS, Robert D. Miller, Jr.; POLK, David D. Fried; POPE, James M. Kolb, Jr.; PULASKI, Edgar J. Easley, J. B. Cross, Paul J. Cornell, Frank M. Westerfield, George K. Mitchell, Philip

J. Deer, William G. Reese, Harold D. Purdy, J. Mayne Parker, W. Mage Honeycutt, John McCullough Smith, William N. Jones, G. Thomas Jansen, A. Henry Thomas, Larry Watkins, William L. Mason, Carl J. Raque, and Ben N. Saltzman; SEBASTIAN, Ken Lilly, A. C. Bradford, W. P. Phillips, Carl L. Williams, Carl Wilson, Morton Wilson, Kenneth Wallace; SEVIER, James I. Balch; ST. FRANCIS, David Lockhart; UNION, George Warren, Wayne Elliott; VAN BUREN, John A. Hall; WASHINGTON, Joe C. Parker, John W. Vinzant, Joseph H. McAlister, Lee B. Parker, Jr.; WHITE, James H. Golleher; YELL, Walter P. Harris; COUNCILORS Eldon Fairley, John B. Kirkley, Paul Gray, John Bell, L. J. P. Bell, Fred C. Inman, Raymond Irwin, John P. Burge, J. B. Jameson, John H. Moore, A. E. Andrews, C. Lynn Harris, Robert McCrary, Curtis B. Clark, W. Ray Jouett, William S. Orr, Jr., Rhys Williams, Morris Henry, Charles F. Wilkins, Kemal Kutait; PRESIDENT A. S. Koenig, Jr.; PRESIDENT-ELECT W. Payton Kolb; FIRST VICE PRESIDENT Mahlon O. Maris; SPEAKER Amail Chudy; VICE SPEAKER Asa Crow; SECRETARY Elvin Shuffield; TREASURER Kenneth R. Duzan; PAST PRESIDENTS Joe Verser, C. R. Ellis, H. W. Thomas, Ross Fowler, Robert Watson, John P. Wood, Ben N. Saltzman, and T. E. Townsend.

Dwight W. Gray, Chairman of the Credentials Committee, reported that sixty-one delegates had registered and that a quorum was present.

Upon motion of Wynne, the House approved

minutes of the 100th annual meeting as published in the June 1976 issue of the Journal of the Arkansas Medical Society. By motion of Orr, the House approved minutes of the meeting held November 14, 1976, as published in the January 1977 issue of the Society Journal.

Speaker Chudy introduced Mrs. Chester L. Young of Kansas City, Kansas, president-elect of the American Medical Association Auxiliary. Mrs. Young addressed the House on the activities of the national auxiliary.

Speaker Chudy recognized G. Thomas Jansen of Little Rock as president of the Southern Medical Association. Mrs. Linus W. Hewitt of Tampa, Florida, president of the Southern Medical Association Auxiliary, was introduced by Dr. Jansen. Mrs. Hewitt brought greetings from the Southern Auxiliary.

The president of the Arkansas Medical Society Auxiliary, Mrs. Carl Wilson of Fort Smith, and the president-elect of the State Auxiliary, Mrs. Kemal Kutait of Fort Smith, were introduced to the House. Both spoke briefly regarding the Auxiliary program of support of Medical Society activities and the Auxiliary's readiness to assist in any way possible.

Speaker Chudy called on Purcell Smith, Arkansas' senior delegate to the American Medical Association, who introduced John H. Budd of Cleveland, president-elect of the AMA. Dr. Budd addressed the House of Delegates on the many problems facing the medical profession and the activities of the AMA.

A. S. Koenig, Jr., of Fort Smith, President of the Society for 1976-77, addressed the House as follows:

ADDRESS OF THE PRESIDENT

Members of the House of Delegates, the Council, officers of the Arkansas Medical Society, honored guests, ladies and gentlemen:

It hardly seems possible that a year has passed since I took office as your president. However, as I look back over the past year, and review the events which have occurred, it is easy to accept the fact that this has been a busy year for our Society. In making this report to you, I would like to review some of the events which have occupied our attention during the past twelve months.

You will remember that, at our last annual session, we honored Mr. Paul Schaefer in antici-

pation of his retirement on August 1, last summer. His retirement took place on schedule, and Dr. Cliff Long stepped into the responsibilities of the Executive Vice President of our Society. I would like to report to you that the transition was made without any disruption or interruption of any of the Society's activities, due primarily to the wide background of experience which Dr. Long brought to his position and his thorough knowledge of the affairs of the Society gained during the many years he devoted to us as chairman of the Council. Of course, he had the ready availability of Paul Schaefer to consult with when necessary, and this has been an added plus in our favor. I just hope that Paul's responsibilities as the administrative director of the Arkansas Foundation for Medical Care have not prevented him from taking advantage of the additional leisure time which he was anticipating. I want to thank both Paul and Cliff for the support and the help that they have given to me. It is quite obvious that the Society could not function in as efficient a manner without their leadership.

It has been said that behind every good man is a good woman, and behind both of these good men is Leah Richmond, who is an inexhaustible source of information and support for all of us. I never fully appreciated how much we depend on her until this year. The other members of the office staff are the most cooperative and willing group of people that I have ever had the pleasure of working with.

Mr. Ken LaMastus, who joined us this winter, spent the major part of each week in Little Rock during the legislative session. He attended committee hearings, gathered information on proposed bills and amendments, and made it his responsibility to become known and acquainted with the members of the Legislature. He prepared the "legislative alert" newsletters to keep the membership informed on the legislative activity during the session. It is Dr. Long's plan to continue to ask Ken to attend each session of the Legislature. Having had an opportunity to work with him during some of the hearings this winter, I feel that his activities can provide considerable support to Mr. Warren and Dr. Shuffield and will create added influence for our Society in the General Assembly. Ken is also to be congratulated for doing a fine job in this portion of his assignment.

HOUSE OF DELEGATES, APRIL 24, 1977



Mrs. Carl Wilson, 1976-77 President of the Arkansas Medical Society Auxiliary, addresses the House.



Mrs. Kemal Kutait, 1977-78 President of the Arkansas Medical Society Auxiliary, advises the House of the Auxiliary's support of Society activities and willingness to assist in all projects.



T. E. Townsend, Chairman of the Society's Committee on Medical Education, presents to Gaither Johnston the Arkansas Academy of Ophthalmology's certificate of accreditation in continuing education.



Thomas A. Bruce, Dean of the University of Arkansas College of Medicine, received a grant of \$11,346 from the American Medical Association Education and Research Foundation. The grant check was presented by Mrs. Deno Pappas, AMA-ERF Chairman of the State Auxiliary.

I guess the greatest disappointment of the year for us was when the Supreme Court nullified Amendment 58, on the basis of a technicality. We all feel that, had the amendment appeared on the ballot, the people of the State would have adopted it without any difficulty. We did not make any effort to introduce legislation for another amendment in the past session of the General Assembly. Because of the continued opposition which we had received from the Trial Lawyers Association, our legislative advisors indicated that the more appropriate route for us to follow in the future will be through both the constitutional convention and a petition from the voters for an initiated referendum. The malpractice problem has not left us. It is still just as acute as it was before the amendment was nullified and we must continue to exert our efforts, beginning this winter, so that by the time of the next general election there will be a proposal before the voters of the State.

After years of effort on the part of many members of our Society, Arkansas Blue Cross and Blue Shield and the Arkansas Congressional delegation, the Department of Health, Education and Welfare finally agreed to change the method of determining physicians' fees for payment under Medicare. We received word last November that Arkansas had been selected as one of two states for a demonstration project to pay physicians on a state-wide fee schedule. Several meetings were held with Arkansas Blue Cross-Blue Shield, as the Medicare intermediary, to work out a method of establishing a fee schedule and on December 13, the members of the Executive Committee of our Society, together with representatives from the intermediary, met with Mr. Tom Tierney, the Director of the Bureau of Health Insurance, and his staff, in Baltimore. At that time, Mr. Tierney made it quite plain to us that the government would not spend any more money under the new program that they are presently disbursing. This statement was made to us in response to our attempt to persuade the Bureau of Health Insurance to accept the concept of raising all the fees from Area II through V to the level of those in Area I. The Bureau of Health Insurance did agree, however, to consider utilizing the same mechanism for developing a fee schedule that was presently under development by Arkansas Blue Cross and Blue Shield for their own contracts. On January

7, 1977, the Medicare intermediary submitted charge data which BHI had requested. We heard nothing for the next two months, and on March 14, the Society enlisted the help of the Arkansas Congressional delegation to stimulate the Bureau of Health Insurance to expedite the negotiations. The Executive Committee met with representatives of the Bureau of Health Insurance in Little Rock on April 5 to discuss specific proposals by the Bureau of Health Insurance. Some aspects of the BHI proposal were unacceptable to the Society representatives. BHI representatives agreed to review certain points of the proposal and submit a letter to the Society prior to the Annual Session. On April 14th, the Society received a detailed proposal from the Bureau of Health Insurance. This is the first time we have had any concrete proposal in writing from the BHI. The method of developing the fee schedule which they had proposed would have the effect of increasing charges to all rural patients and decreasing the assignment rate. This morning Dr. Long and I met with Dr. Robert Benafield, Medical Director of Blue Cross-Blue Shield, and Mr. Bob Shoptaw, Vice President for Government Affairs of Blue Cross-Blue Shield, to review the BHI proposal. From the way we analyze the proposal, we feel that if we were to agree to it, the net effect would be one of making the so-called experiment a failure. We felt that we should not be in the position of petitioning the Bureau of Health Insurance for a handout; that we should make our position clear, we should state what our requirements are, and that we should enlist the help of our Congressional delegation. This position was endorsed by the Council at its meeting this morning. Incidentally, just before noon I met Senator Bumpers in the lobby and had an opportunity to visit with him a little about this matter. We had hoped that at this meeting there could be a proposal which we could present for your consideration. I am sorry and regret the fact that these negotiations with the Bureau of Health Insurance have dragged out for so long but, unfortunately, we are playing this game in the other team's ballpark. We have to wait for proposals and counter proposals before we can achieve any goals and, believe me, the movement is slow. I guess it is characteristic of what happens in the bureaucratic system. You will be kept informed. The negotiations will have to

COUNCIL OF THE SOCIETY FOR 1977-78



Seated, left to right, Councilors William S. Orr, Little Rock; Paul Gray, Batesville; Kemal Kutait, Fort Smith; and Morris Henry, Fayetteville; Ken Lilly, Fort Smith, First Vice President; W. Payton Kolb, Little Rock, President; George F. Wynne, Warren, President-elect; John P. Burge, Lake Village, Chairman of the Council; A. E. Andrews, Texarkana, Councilor; Secretary Elvin Shuffield, Little Rock; Councilor Rhys Williams, Harrison; (Standing, left to right) Councilors John E. Bell, Searcy; L. J. Pat Bell, Helena; Speaker Amal Chudv, North Little Rock; Councilors Raymond Irwin, Pine Bluff; John B. Kirkley, Jonesboro; Merrill J. Osborne, Blytheville; Curtis B. Clark, Sheridan; John H. Moore, El Dorado; David L. Lockhart, Forrest City; Treasurer Kenneth R. Duzan; Councilors J. B. Jameson, Camden; C. Lynn Harris, Hope; W. Ray Jouett, Little Rock; and Third Vice President, A. Henry Thomas of Little Rock.

continue and, hopefully, we can resolve this matter which has been a bone of contention with the physicians of the State for several years.

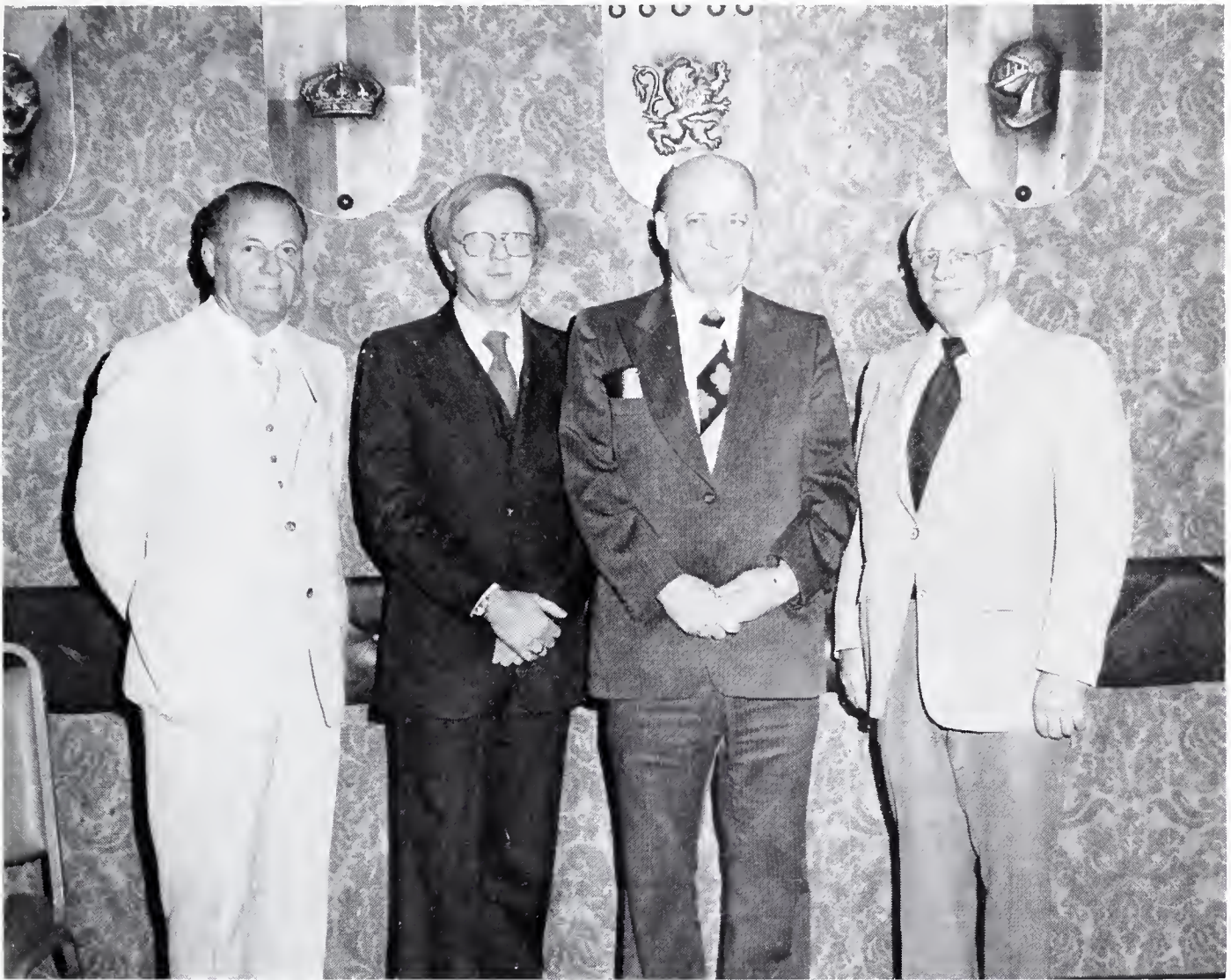
The Legislature this year was a difficult one to evaluate. Dr. Shuffield will report in more detail about the specific legislation that was considered, and the outcome of each of the bills, so I will not detract from his report, other than to say that the Healing Arts Board and the Healing Arts examination are no more. Senate Bill 48, which would have given optometrists the right to use drugs in refraction and therapy, in addition to putting them in control of the dispensing opticians, among other things, was barely defeated by veto of the Governor, and the inability of the optometrists' group to engender enough support to override the veto.

You have before you for your consideration for the first time, a completely revised Constitution and By-Laws for our Society. Because of the many amendments which have been made over the years, a lot of housekeeping was necessary and I direct your attention to the sections involving continuing medical education, changes in categories of membership, and other alterations which are being proposed, to bring our Constitution and By-Laws into focus with our present activities. The document will be discussed in detail at the reference committee hearings and I invite all of you to participate. Revisions in the proposed document can be made during this meeting and it will finally be presented to you for your approval at the Annual Session in 1978.

During the year, all four health systems agencies have become operational, and the new State Health Coordinating Council has been appointed by the Governor. Physician membership in these bodies is in a great minority, but physician influence can be profound. Meetings of the boards of all of the agencies are open to the public, and I invite all of you to become interested and attend the meetings of the various boards of directors, and voice your opinion. The agencies are proceeding with their growth and development and program planning, in spite of the fact that challenges have been filed in the courts by the State of North Carolina and the American Medical Association, to name only a few. The government does not seem to be concerned with the outcome of the litigation involving Public Law 93-641. On the 19th of this

month, last Tuesday as a matter of fact, the Arkansas Medical Society was invited to comment on the first draft of the proposed policies and procedures of the State Health Planning Agency at the meeting of the State Health Coordinating Council. Mr. LaMastus and I attended that meeting and I would like to quote to you, from one section of the proposed draft, an area which concerned us considerably. Of course, you all know that the new Health Planning Law, 93-641, requires the issuance of a "certificate of need" for any new construction, new services, replacement of outmoded facilities, and so forth, on expenditures in excess of \$100,000. PL 93-641, although it does not close the door on planning control of private physicians' offices and clinics, it did spell out specifically that these would be included. Arkansas Law 558, which created the State Health Coordinating Council, also does not specifically name private physicians or group clinics; however, in the proposed draft which was presented this week, in speaking of the definition of the groups of facilities which were subject to review and planning control, and I quote now "the term organized ambulatory health care facilities means a facility, not part of a hospital, which is organized and operated to provide health services to outpatients." They go on to include family planning clinics, public health facilities, service centers, mental health centers, and the last sentence states "such term includes the offices of private physicians or dentists but review is limited to major equipment and major new services." I asked if they would define for us what was meant by major new service or major new equipment and there was no specific answer. Mr. Cleary indicated in his presentation that he did not feel private physicians should be competing with facilities available in hospitals. With this I took considerable issue, pointing out that the fact that services in hospitals were loaded with overhead charges for non-income producing areas in the institution and that the same services could be provided on an out-patient basis at considerably less cost to the patient or the intermediary. The government, at this point in time, is recognizing that and is encouraging the utilization of out-patient facilities. I felt that this inclusion in their proposed draft was not in the best interest of the people of the State. The draft was also opposed, for a different reason, by the Arkansas

OFFICERS FOR 1977-78



From left to right: Secretary Elvin Shuffield of Little Rock, John P. Burge of Lake Village, Chairman of the Council, President-elect George F. Wynne of Warren, and President W. Payton Kolb of Little Rock make up the Society Executive Committee for 1977-78.

Hospital Association and one or two other people who were at the hearing. The draft will be presented to a public hearing at the State Health Department on May 3rd. The Society plans to be represented at the public hearing and to continue our objection to this. We invite any of you in the Little Rock area who have any concern in this area to be present at the hearing because this is going to reach right into your private office. In my inaugural talk last year, I called to your attention the potential impact of this law on the private practice of medicine. I did not anticipate its effect in this State at this early date. I hope that we are successful in having this paragraph deleted from the proposed policies of the State Health Coordinating Council.

The Annual Session program of the Society this year, the Ophthalmology Section, and the

Arkansas Baptist Hospital, were all surveyed by the Committee on Medical Education of the Society. Accreditation for continuing medical education credit was recommended in each case. Final approval has just recently been received from the Council on Medical Education of the American Medical Association. Currently, our Society is working with several hospitals toward accreditation of continuing medical education programs. I would like to take this opportunity to publicly thank Dr. Ken Lilly of Fort Smith, who graciously accepted when I asked him to be convention chairman for this meeting. I think he has produced a superb program from which all of us can gain a great deal of benefit. Ken, I would like to express to you, at this time, my gratitude for this wonderful meeting.

One of the more pleasant duties of my office was attending both the annual and clinical

meetings of the American Medical Association. At the annual session in Dallas, it was my privilege to participate in the inauguration of my old friend, Dick Palmer, as president of the American Medical Association. Our Society joined with several others in the southwestern states to sponsor a Southwestern Party for the AMA House of Delegates and officers. It was a real western barbeque with western music and rodeo demonstration, held at the Hunt Ranch near Dallas, and those who attended were very complimentary. I feel that our participation was a good investment for our Society. At the clinical session in November, one of our delegates was unavoidably unable to attend, and neither of our alternates was present. Cliff invited me to participate in the meeting as a delegate from our Society and I had the pleasure of joining him in the House of Delegates for his last session of that body as a member of the House.

As I come to the end of my term of office, there is a certain degree of nostalgia, mixed with one of relief, and I am looking forward to becoming a member of that happy group of senior citizens known as the past presidents. All of you have to listen to them criticize and they never have any of the responsibility. This, to me, is a very enviable spot to be in and is something akin to being a grandparent. We have a strong, viable Society with good leadership and a superb executive office staff. The Society's true viability comes from those of you who are interested enough and take enough time from your practice to participate in its affairs. As we look into the future of medicine and see the efforts to encroach upon our profession by control and regulation, it is going to be essential that we maintain a strong, alert, and responsive organization. This can only continue through your continued interest and contribution. I am confident that our future is in good hands.

Vice Speaker Asa Crow introduced Kemal Kutait, Chairman of the Arkansas Medical Political Action Committee. Dr. Kutait spoke briefly regarding the activities of Ark-PAC and encouraged physician support of the committee.

Vice Speaker Crow introduced Mrs. Gwen Pappas, chairman of the AMA-ERF Committee of the Arkansas Medical Society Auxiliary. On behalf of the American Medical Association Education and Research Foundation, Mrs. Pappas presented to Thomas A. Bruce, Dean of the Uni-

versity of Arkansas College of Medicine, a check for \$11,346 as a grant to the college. Dean Bruce expressed appreciation for the help of the Auxiliary in making the money available to the college and indicated that it would go to help provide assistance to medical students.

Speaker Chudy called on T. E. Townsend, chairman of the Committee on Medical Education, for a presentation. Dr. Townsend reviewed for members of the House the fact that in 1975 the American Medical Association granted approval for the Arkansas Medical Society to conduct a program of accreditation aimed at institutions and organizations of local scope providing continuing medical education. The Committee on Medical Education conducts the accreditation program. The Arkansas Academy of Ophthalmology was the first specialty organization in the State to request accreditation of its continuing medical education program. The Academy was surveyed in 1976 and approved for accreditation. A "Certificate of Accreditation" for a two-year period was presented to Dr. Gaither Johnston of Hot Springs, president of the Academy of Ophthalmology. For the period of the accreditation, the Academy programs qualify for Category I credit for continuing medical education and the Academy is responsible for maintaining the standards of the approved essentials for continuing medical education.

Dr. Johnston expressed appreciation for the certificate of accreditation and requested the privilege of the floor to discuss another issue. He spoke concerning the grave situation confronting the medical profession of the State. Dr. Johnston discussed Senate Bill 48 which was introduced in the 1977 session of the Legislature and would have granted the privilege of the practice of medicine to a non-medical group. The proposal was vetoed by the Governor; however, Dr. Johnston reported that the Governor was disappointed in the lack of communication from the physicians of the State regarding the proposal. Dr. Johnston proposed that the House of Delegates create a committee to help the Legislative Committee formulate a plan to stimulate the physicians over the State to discuss legislative issues with their representatives. Speaker Chudy advised Dr. Johnston that his suggestion would be given consideration by the officers.

THE COUNCIL RECEPTION SUNDAY EVENING



Rhys Williams of Harrison, a member of the Council, visits with members of his district during the Council reception.



A. E. Andrews of Texarkana, a sixth district councilor, visits with colleagues during the Sunday evening reception.



Three past presidents of the Society — Joe Verser, Ross Fowler and Joe Norton — and tenth district councilor Charles Wilkins at the Council reception.

Speaker Chudy called for reports from committees. In recognizing Elvin Shuffield for the report of his Committee on Medical Legislation, he expressed appreciation for the tremendous amount of time and effort which Dr. Shuffield devotes to the medical profession. Dr. Shuffield was given a standing ovation by the House. The report of the Committee on Medical Legislation as given by Dr. Shuffield appears following the minutes of the House meeting. Speaker Chudy also recognized Mr. Eugene Warren, legal counsel, and expressed appreciation to him for his work.

A. S. Koenig, Jr., chairman of the Constitutional Revisions Committee, presented his committee's proposal for revision of the Society's Constitution and By-Laws. He called the attention of the House to sections of the proposal which will require continuing medical education for membership retention, changes in the membership classifications, the executive committee of the Council, the reference committees, etc. He urged all members to attend the reference committee hearing on the proposed revision of the Constitution and By-Laws. Dr. Koenig expressed appreciation to committee members who had assisted with the drafting of the proposal.

President Koenig then reported to the House on negotiations with the Bureau of Health Insurance on the method of payment for physicians' fees under Medicare. He spoke as follows:

"I only briefly covered the negotiations with the Bureau of Health Insurance in my President's Address. You might be interested in knowing that at our meeting on April 5th, one of the proposals which the Bureau of Health Insurance presented was that physicians would be asked to sign a participating agreement with the government for the one-area fee schedule. This would mean that physicians would accept assignment on all Medicare patients or would not accept any assignment for those patients. In other words, you would give up your free choice of selection on those patients for whom you wish to receive assignment and those whom you wish to bill directly. We told the representatives of the Bureau of Health Insurance that this was completely unacceptable to us and that we wouldn't even bring it to the Society for any discussion. In the letter of April 14th, they

advise that they will not insist on this contractual commitment. However, one thing they did was whittle down the fee profile so that what would be paid to the physicians of the State under the proposal would amount to about 75% average across the board for the State. The other thing they mention in their letter is that a physician must certify on his Medicare claim form that the fee charged under Medicare is the same fee charged all of his patients. In areas two through five, what would happen would be for physicians to raise the fee charged all patients and this way the government could come back and say "I see the doctors have raised all their charges to those poor people who can't pay them." The other net effect would be that if the physicians in the rural areas don't want to do this, they could take fewer assignments. Eighty percent of our doctors in the rural areas are now accepting assignments. One sensitive point that the government seems to have in this is that they are very acutely aware of the fact that a lot of physicians do not accept assignments and if you will note in some of the bills being introduced in Congress (principally the Talmadge bill), you are going to have to indicate that you will either take assignments on everybody or on nobody, such as they tried to tie us to in this proposal."

Secretary Shuffield presented a resolution for consideration of the House. The resolution proposed Society endorsement of construction of a convention facility in Little Rock. The resolution was referred to reference committee number three for consideration.

Speaker Chudy referred Dr. Shuffield's report to reference committee number two and Dr. Koenig's report on the Constitution Revisions to reference committee number one. He urged members to attend the open hearings of the reference committees and to participate in the discussion of the various items of business.

Meetings were held on the floor of the House to select district representatives to the Nominating Committee. Selected were Joe Verser, William Wells, Robert Miller, Raymond Irwin, George Warren, Lynn Harris, James Gardner, Ben Saltzman, Mahlon Maris and Ken Lilly.

The first meeting of the House of Delegates adjourned at 3:30 P.M.



The Council of the Society honored Dr. and Mrs. G. Thomas Jansen of Little Rock at a reception on Sunday evening. Dr. Jansen is president of the Southern Medical Association. A. S. Koenig, Jr., Society President, and Dr. and Mrs. Jansen welcome Dr. and Mrs. Raymond Irwin.

REMARKS OF THE PRESIDENT OF THE ARKANSAS MEDICAL SOCIETY AUXILIARY

Mrs. Carl Wilson

Members of the House of Delegates and Guests:

The Arkansas Medical Society Auxiliary appreciates the courtesy you extended to us by inviting the auxiliary presidents to appear before you.

We are your wives and, for better or worse, we represent you and our actions reflect upon you.

Hopefully, this year, our contacts with other organizations, our public appearances and our efforts to "educate the public" have been fruitful and have helped to polish our image. I say "our image" because the auxiliary members feel that we, too, are involved in the medical profession, and that what happens to you also happens to us.

This House has delegates from 58 county societies in the State, yet there are only 22

counties represented in the Woman's Auxiliary, 750 members in all.

If it is important for you to belong to the Medical Society, it is important for your wife to belong to the auxiliary. Get your women involved. Let them learn what to do and how to do it. So that they can polish your halo a little in your home town.

Let her help the people of Arkansas to continue to understand their doctors, to appreciate them, and perhaps, to even love them.

We want to help you. Help us to help you by getting your wives involved.

Thank you for inviting me here. I regard it as a privilege and as an honor.

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION

Elvin Shuffield, Chairman

To all of you who served in the Legislative Infirmary, we especially appreciate your valuable

service. All of you who talked personally or phoned your Legislators, we are very thankful, but we could have used considerable more support. We heard on numerous occasions from the Legislators: "I have not heard from my doctors at home."

Ladies and gentlemen, you will never know and understand how much Attorney Eugene Warren, Mike Mitchell and Bob Cearley helped this organization. We spent more hours sitting in various committee hearings than we have ever spent before.

The Optometrists and Chiropractors had bills in committee and these were used as clubs to deter us in our work.

We had very nice cooperation from the Chamber of Commerce, Associated Industries, ACORN, Teacher Retirement Groups and other Retirement Groups in fighting SB 48 (Optometry Bill), HB 267, making Chiropractors physicians and HB 415 making Optometrists physicians. The Arkansas Supreme Court has ruled that these are not learned professions.

Altogether, 1,594 bills were introduced. Within the first two weeks, 68 bills pertaining to the practice of medicine were introduced.

The Healing Arts Act and Board were completely abolished in one foul sweep. I have never heard so much misinformation disseminated on one subject. The pendulum swung too far when they abolished the Board. They could have stopped the requirement of Physicians, Osteopaths and Chiropractors taking the exam and retained the Board. We have nothing to examine quacks, naturopaths and off-beat Californians trying to cure people. Our people are wide open for a giant rip-off by these charlatans.

Governor David Pryor vetoed SB 48 after one of the greatest Legislative endeavors and swap-outs that I have ever seen. Even our friends in the Legislature came to us early and told us we would just have to forgive them on this vote as they were already committed. Governor Pryor should receive words of appreciation from all of us because in his veto statement, according to the *Gazette*, he said the Optometrists were not qualified to use drugs. (This bill went further than this in saying they may use drugs and use other diagnostic procedures.) The Ophthalmologists were represented by Dr. Gaither Johnston, Dr. Joe Lyford, Dr. Mayne Parker, and Dr. J. B. Cross, and fortunately there were several

others on hand to lend moral support and numbers at this hearing.

We were successful in passing everything this body asked us to except for one bill which would have authorized the Arkansas Medical Board to revoke the license granted by reciprocity to those that did not remain in the town in which he had agreed to practice. We did not have 100% support from our own members and our sponsor, Representative Ivan Rose, died during the session.

The following Acts are associated with the practice of medicine:

Act 231: Relates to allocation of freshmen enrollment positions at the University of Arkansas Medical School.

Act 166: Creates a registry for Adult Abuse Problems.

Act 199: Abolishes exams and Board of Healing Arts.

Act 232: Provides that insurance policies that pay for certain service under their contract would pay for services on out patient services *performed by licensed out patient surgery centers*.

Act 381: Creates Occupational Therapy Examining Committee.

Act 449: Permits 17-year-old minors or older to sell their blood with parental consent.

Act 491: Authorized E. M. S. Advisory Council to promulgate temporary rules and regulations subject to final approval by the General Assembly.

Act 275: Limits liability of members of Board of Healing Arts Profession.

Act 767: Provides for continuing education of healing arts practitioners. Requires regulatory boards to establish regulations for number of credit hours, manner and methods of obtaining such.

Act 451: Provides for reports by hospitals to State Medical Board. Authorizes hospitals and professional societies to discipline physicians, preserves confidentiality, and provides that persons making reports are immune from liability.

Act 170 and Act 330: Provide central registry for spinal cord disabled persons, duties and responsibilities.

Act 452: Grants, except for negligence, absolute immunity from civil liability to physicians and licensed nurses performing searches of body cavities.

Act 204: Health Department to make avail-

able instructions for prevention of choking on food.

Act 459: Provides for certification of physicians' trained assistants by State Medical Board.

Act 728: Prohibits smoking of tobacco in certain public places.

Act 362: Professional liability reinsurance exchange.

Act 415 and Act 511: Authorize Medical Board to issue temporary permit to physicians fulfilling specified criteria for temporary licensure to practice medicine in defined areas of critical medical shortage.

Act 878: Requires optometrists, ophthalmologists and oculists to provide customers with prescription for glasses and contact lens at no additional charge.

Act 879: Proposes to permit an individual to request or refuse in writing, medical and surgical procedures calculated to prolong one's life. Authorizes such by certain others on behalf of minor adult who is physically or mentally unable to execute or is otherwise incapacitated from executing either document. This is the so-called "right to die" legislation.

Act 66: Exempts physicians and medical personnel in National Guard from malpractice liability.

Act 118: Provides for a consumer to be appointed to each State Board and Commission.

Act 318: Adds Hospital Administrator as 14th member of Health Board.

Act 445: Prescribes authority and imposes restrictions relative to hospital and medical society committees reviewing quality of hospital and medical care.

Act 805: Authorizes administration of emergency surgical or medical treatment in absence of capable consentor; empowers circuit or chancery court to authorize treatment over objection of non-consentor.

The following bills were introduced but failed to pass pertaining to the medical profession:

HB 28: Would amend state income tax laws to offer incentive to physicians to engage in rural practice.

HB 27: Authorizes retirement systems to

make loans to doctors practicing in rural communities.

HB 145: New optometry board and regulations.

HB 180: New Board of Optometry to regulate optometry and opticians.

HB 254: Vetoed — Incentives for medical education and loans to encourage graduates to practice in rural areas.

HB 366: Establish rural health clinic revolving fund to be administered by Board of Finance.

HB 415: To provide employee may designate physician when needed services required.

HB 523: Redefined practice of nursing. (Make physical assessments and write treatment.)

HB 539: Provide that 25% of Hospital Board members had to be doctors practicing five years or longer.

HB 588: All Professional and Occupational Boards to Division of Health Profession.

HB 614: To put an optometrist on the State Health Board.

SB 94: Make injectable Talwin Schedule III Drug.

SB 568: Define death. (Moment person goes into irreversible coma.)

Ladies and gentlemen, let me remind you that we lost a great friend in the House of Representatives when Representative Ivan Rose died suddenly during this session. Our true and loyal friends are few and far between. At this time it is very important that we start grooming candidates for the House and the Senate. Senate Bill 48 gave us an excellent example of what can be done if a force works together. Those people had selected candidates, put money in the campaigns, had supported them loyally and had their bill all ready to go before the Legislature ever went into session.

We are especially thankful to Dr. Long, Miss Leah Richmond and Mr. Ken LaMastus and their staff at the state headquarters. We especially appreciate their getting out the bulletins on such short notice. Often times we only had thirty minutes notice in which to get a bulletin out and the entire Society is in great need of quicker and closer communications on some of our legislative problems.

FINAL SESSION

HOUSE OF DELEGATES

Wednesday, April 27, 1977

Speaker Amail Chudy called the House to order at 10:10 A.M. on Wednesday, April 27, 1977. Invocation was by C. R. Ellis.

The Executive Vice President, Dr. Long, called the roll of members. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, John Hestir; BAXTER, John F. Guenthner; BENTON, Richard N. Pearson; BOONE, Joe B. Wilson; CHICOT, J. R. Russell; CLARK, R. Jerry Mann; CLEBURNE, William M. Wells; CRAIGHEAD-POINSETT, Frank M. James, James Robinette, Joe Verser; CRAWFORD, Millard C. Edds; CRITTENDEN, Milton D. Deneke; FAULKNER, Jimmie J. Magie; GARLAND, Gaither C. Johnston, Ronald J. Bracken, James L. Gardner; GRANT, Curtis B. Clark; GREENE-CLAY, A. J. Baker; HOT SPRING, Robert H. White; HOWARD-PIKE, Robert Sykes; INDEPENDENCE, Jim E. Lytle; JEFFERSON, Banks Blackwell, George V. Roberson; JOHNSON, Boyce W. West; LAWRENCE, Ted S. Lancaster; LEE, Dwight W. Gray; LOGAN, James Harper Bledsoe; MISSISSIPPI, Merrill J. Osborne; MONROE, N. C. David, Jr.; NEVADA, H. Blake Crow; OUACHITA, Cal Sanders; PHILLIPS, Robert D. Miller, Jr.; POLK, David D. Fried; POPE, James M. Kolb, Jr.; PULASKI, Edgar J. Easley, Paul J. Cornell, Robert D. Dickins, Jr., George K. Mitchell, William G. Reese, Harold D. Purdy, J. Mayne Parker, Fred J. Kittler, W. Mage Honeycutt, John McCollough Smith, Gilbert O. Dean, William N. Jones, G. Thomas Jansen, A. Henry Thomas, David L. Barclay, K. David McKelvey, Carl J. Raque, Ben N. Saltzman, Purcell Smith; RANDOLPH, William W. Scott; SEBASTIAN, Ken Lilly, A. C. Bradford, W. P. Phillips, Carl L. Williams, Morton C. Wilson, Kenneth Wallace, A. S. Koenig, Jr.; ST. FRANCIS, David Lockhart, UNION, George Warren, Wayne Elliott; WASHINGTON, Joe C. Parker, John W. Vinzant, Joseph H. McAlister, Lee B. Parker, Jr.; YELL, Rogers P. Edmondson; COUNCILORS Eldon Fairley, John B. Kirkley, Paul

Gray, John Bell, L. J. P. Bell, Raymond Irwin, John P. Burge, J. B. Jameson, John H. Moore, A. E. Andrews, C. Lynn Harris, Curtis B. Clark, W. Ray Jouett, William S. Orr, Jr., Rhys Williams, Morris Henry, Charles F. Wilkins, Kemal Kutait; PRESIDENT W. Payton Kolb; FIRST VICE PRESIDENT Mahlon O. Maris; SPEAKER Amail Chudy; VICE SPEAKER Asa Crow; SECRETARY Elvin Shuffield; TREASURER Kenneth R. Duzan; PAST PRESIDENTS Joe Verser, C. R. Ellis, H. W. Thomas, Ross Fowler, John P. Wood, Ben N. Saltzman, and A. S. Koenig, Jr.

Speaker Chudy called on Ken Lilly for the report of the Nominating Committee. Dr. Lilly presented names of nominees for councilor positions and then nominees for all offices other than president-elect. Elected by acclamation were:

First Vice President: Ken Lilly, Fort Smith

Second Vice President: R. Jerry Mann, Arkadelphia

Third Vice President: A. Henry Thomas, Little Rock

Secretary: H. Elvin Shuffield, Little Rock

Treasurer: Kenneth R. Duzan, El Dorado

Speaker of the House: Amail Chudy, North Little Rock

Vice Speaker: Asa Crow, Paragould

Councilors:

First District: Merrill J. Osborne, Blytheville

Second District: Paul Gray, Batesville

Third District: David L. Lockhart, Forrest City

Fourth District: Raymond Irwin, Pine Bluff

Fifth District: John H. Moore, El Dorado

Sixth District: A. E. Andrews, Texarkana

Seventh District: Curtis B. Clark, Sheridan

Eighth District: W. Ray Jouett, Little Rock

Ninth District: Morris Henry, Fayetteville

Tenth District: Charles F. Wilkins, Jr., Russellville

In electing Ken Lilly to the position of First Vice President, the House gave recognition to the work he had done as chairman of the program committee for the 1977 meeting and expressed appreciation to Dr. Lilly.



Arkansas Blue Cross-Blue Shield hosted a party for Society members on Monday evening of the Convention. The lavish buffet tables were decorated with the Blue Cross-Blue Shield trademark carved in blue ice.

The Nominating Committee proposed Ben N. Saltzman of Little Rock and George F. Wynne of Warren for the position of president-elect of the Society. Dr. Saltzman requested that his name be removed from nomination and that Dr. Wynne be elected by acclamation. The House so voted. Dr. Wynne was not in the House at the time and Joe Verser spoke in his behalf, expressing thanks to the House for electing Dr. Wynne to the position. Dr. Wynne was present a few minutes later and addressed the House as follows:

"I have had a very profitable day. At 8:30 A.M. this morning, I became the grandfather of a nine-pound baby girl and now I have been nominated by this astute body as president-elect. I want you to know that I appreciate the honor and I will work as hard as possible to fulfill your vote of confidence. Thank you."

Dr. Lilly then presented nominations for delegate and alternate delegate to the American

Medical Association for terms from January 1, 1978, to December 31, 1979. The House unanimously elected Purcell Smith of Little Rock as delegate and T. E. Townsend of Pine Bluff as his alternate delegate.

Speaker Chudy called for reports of the Reference Committees. The reports were presented as follows:

REPORT OF REFERENCE COMMITTEE NUMBER ONE

Reference Committee Number One consisted of Paul Cornell, A. E. Andrews, James Robinette and Mahlon Maris as chairman. The committee met on Sunday, April 24th, 1977, with all members present. The reports considered by this committee were as follows:

Professional Relations Committee of the Sixth, Seventh and Tenth Districts.

Professional Relations Committee of the Eighth District and the State.

Reports of the Councilors for the Fifth and Tenth Districts.

Report of the Council, John P. Burge, Chairman.

Report of the Executive Vice President, C. C. Long.

Report of the Budget Committee, H. W. Thomas, Chairman.

Mr. Speaker, the committee recommends approval of the above reports as printed and I so move. Approval was voted by the House.

The proposed revisions of the Constitution and By-Laws were discussed and are submitted with the following alterations:

Page 4 — Section 2, Item A, Active Membership. This section shall read as in the previous Constitution and By-Laws, to wit: "The active membership of this Society shall be comprised of all the active members of its component societies. Only such person is eligible for active membership in a component society as possesses the degree of Doctor of Medicine and holds an unrevoked license to practice medicine and surgery by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this Section (Adopted, House of Delegates, 1937 Annual Session) nor to the members of the specially chartered "Student and Intern and Resident Societies." Delete the definition as listed in the new Constitution as follows: "Active membership of this Society shall be limited to persons who possess the degree of Doctor of Medicine and who hold an unrevoked license to practice medicine and surgery issued by the Arkansas State Medical Board. Such members shall have the right to vote, hold office, and all other privileges of membership in this Society."

Page 4 — Life Membership. Three lines from the bottom of the page, change the attained age from seventy-five to seventy.

Page 9 — Section 6, Item A. Change to read "Each regular county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five Arkansas Medical Society members . . ." (the words "Arkansas Medical Society" have been added).

Page 13 — After Section 8, councilors, we are inserting:

Section 9. Chairman of the Council. The Chairman is to be selected by the Council following the election of the Councilors by the House of Delegates. His duties shall be (1) to preside at all meetings of the Council, (2) to serve as a member of the Executive Committee of the Council, and (3) to appoint the Council committees.

Page 13 — Section 1, Powers and Duties, Item A. The Reference Committee recommends inserting a sentence at the end of this paragraph as follows: "The Council shall be expected to meet at least bi-monthly."

Page 20 — Section 12. This reference committee recommends deleting this entire section which is as follows: "Retention of Component Status. All members of the county society must be members of the State Society for the county society to retain its component status."

Mr. Speaker, Reference Committee Number One recommends the adoption of the proposed Constitutional Revisions as changed by this committee. It is our understanding that this Constitution is to be tabled for one year and voted on in 1978.

The House voted approval of the report as presented with one grammatical correction (which has been incorporated in above copy). There was considerable discussion regarding the portion pertaining to bi-monthly Council meetings and the vote on this section was not unanimous.

Vice Speaker Crow called on Boyce West, who presented the report of Reference Committee Number Two as follows:

REPORT OF REFERENCE COMMITTEE NUMBER TWO

The members of Reference Committee Number Two were William N. Jones, John H. Moore, T. E. Townsend, and myself as chairman. The committee met on Sunday, April 24th, and considered the following reports:

Committee on Public Health, Ben Saltzman, Chairman.

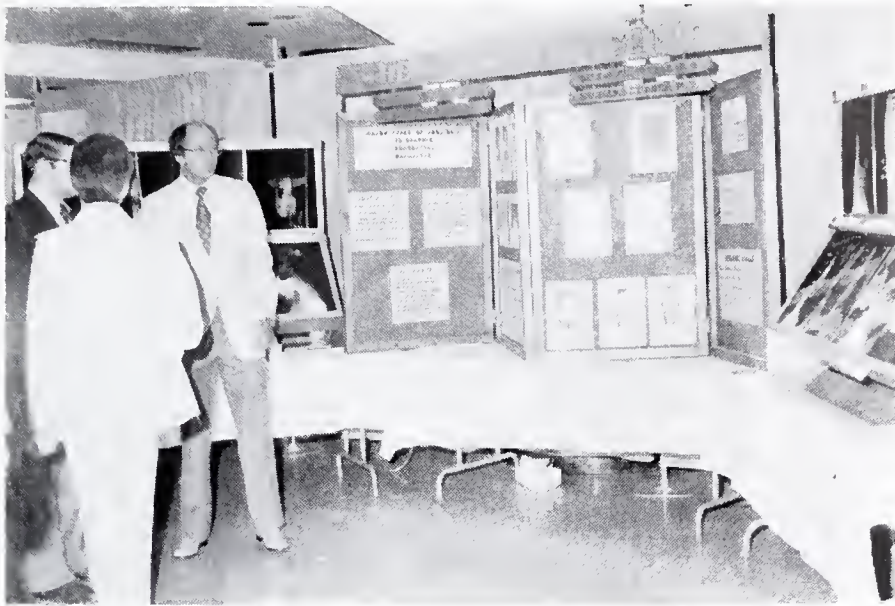
Committee on Public Relations, Ray Jouett, Chairman.

Advisory Committee to the Medical Assistants Society, G. G. Graham, Chairman.

Medical School Committee, Asa Crow, Chairman.

Mr. Speaker, your Reference Committee rec-

SCIENTIFIC EXHIBITS

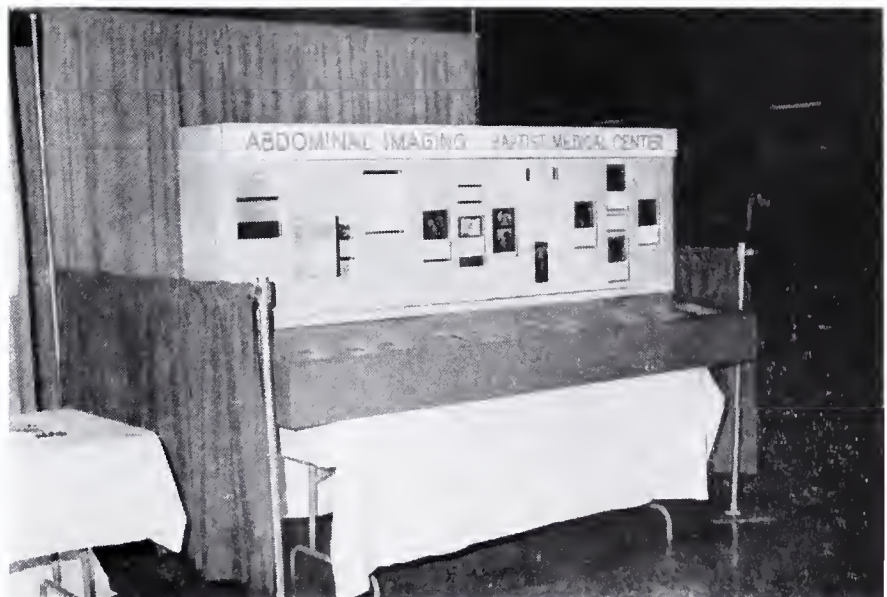


"Major Types of Scoliosis — Idiopathic, Congenital, Paralytic." Exhibit by Samuel B. Thompson, John D. Christian, William L. Steele, and Richard J. Nasca, all of Little Rock.

Twenty-five outstanding exhibits were presented at the 1977 meeting. Three of these exhibits were selected for their exceptional value to the practicing physicians:



"Snakebite in Arkansas," Nathan E. Strickland, Batesville.



"Abdominal Imaging," Doyne Dodd, Radiologist, Baptist Medical Center.

ommends the acceptance of the above reports as published in the Journal of the Arkansas Medical Society and I so move.

Physician-Nurse Joint Practice Committee, Robert Watson, Chairman. The Reference Committee would like to suggest that the Council consider an on-going system of communications between the councilor districts and the equivalent nursing representatives in those districts. The Reference Committee recommends the acceptance of this report as published in the Journal and I so move.

Report of the State Medical Board. The Reference Committee would like to emphasize the concern of the State Medical Board regarding the licensure of Physicians' Assistants and would like to encourage the support of the State Medical Board in its endeavors. Mr. Speaker, the Reference Committee recommends the acceptance of this report as published in the Journal and I so move.

Summary of the Arkansas State Department of Health Activities, Rex Ramsay, Director. The Committee would like to compliment the Department of Health on its continued expansion of services which required the addition of new facilities. Mr. Speaker, the Reference Committee recommends the acceptance of this report as published in the Journal and I so move.

Report from the Arkansas Medical Political Action Committee, Kemal Kutait, Chairman. The Committee wishes to join with the chairman of Ark-PAC to encourage the members of the Arkansas Medical Society to become active members of the committee. Mr. Speaker, your Reference Committee recommends the acceptance of this report as published and I so move.

Legislative Committee Report. Elvin Shuffield, Chairman. In view of the increasing volume of activity concerning medical affairs, your Reference Committee would like to recommend that a feasibility study be undertaken regarding the establishment of an office in Little Rock as an extension of the State Society office. Mr. Speaker, the Reference Committee recommends acceptance of this report as presented to the House of Delegates and I so move.

Mr. Speaker, this concludes the report of Reference Committee Number Two. I wish to thank those who appeared before this committee and my fellow members of the committee.

Upon motion of Shuffield, the House voted to approve the report of Reference Committee Number Two as presented to the House.

Speaker Chudy then called for the last reference committee report, which was presented as follows.

REPORT OF REFERENCE COMMITTEE NUMBER THREE

Reference Committee Number Three consisted of Philip J. Deer, Jr., W. P. Phillips, John E. Bell, and John M. Hestir as chairman. The Reference Committee met on Sunday afternoon, April 24, 1977, and gave careful consideration to the items referred to it. The committee considered the following reports:

Committee on Mental Health, W. Payton Kolb, Chairman.

Sub-Committee on Liaison with Vocational Rehabilitation, John P. Wood, Chairman.

Committee on Veterans Administration Affairs, J. Warren Murry, Chairman.

Committee on Insurance, Banks Blackwell, Chairman.

Committee on Medicine and Religion, C. R. Ellis, Chairman.

Private Insurance Review Committee, H. Austin Grimes, Chairman.

Report of the Councilors from the First District (John B. Kirkley) and from the Fourth District (Raymond Irwin).

Medical Services Review Committee. Charles F. Wilkins, Chairman.

Mr. Speaker, the Reference Committee recommends the acceptance of the above reports as printed in the Journal of the Arkansas Medical Society and I so move.

Sub-Committee on Tuberculosis, Donald L. Miller, Chairman. The Sub-Committee recommends that the State Department of Health consider a publication to be made available to practicing and other interested physicians. This publication would be revised annually, or as seen necessary, and should inform the practitioner of the State Health Department policies in regard to diagnosis and treatment of tuberculosis, atypical microbacterial infections, fungus infections, and sarcoidosis. It should also include policies regarding skin testing and use of Isoniazid prophylactically. Information on most of these matters has been available to physicians for some time; however, the Committee felt that



John H. Budd, Cleveland, President-elect of the American Medical Association, addresses the House of Delegates on April 24th.



A. S. Koenig, Jr., President of the Arkansas Medical Society for 1976-77, makes his "President's Address" to the House on April 24th.



The House of Delegates in session on Sunday, April 24th.

an information booklet, such as described above, would be most helpful.

Mr. Speaker, your Reference Committee recommends the adoption of the recommendation from the Sub-Committee on Tuberculosis.

Report of the Medical Education Foundation for Arkansas, Robert Watson, President. Dr. Watson submitted the following recommendation. The Liaison Committee for the Medical Students and others recommended by the Reference Committee of 1975 that a trial series of quarterly lectures beginning this year are to be presented at the Medical Center. This series of lectures is to be known as being of Arkansas Medical Society sponsorship. They are to be presented by national, creditable speakers on subjects common to the interest of students at different levels of training. The selection of the speakers and the choice of subjects is made by a joint committee from the Office of Student Affairs at the University of Arkansas College of Medicine and the Medical Education Foundation for Arkansas. As continued funds accumulate, additional means of bettering medical education in Arkansas will be developed. This series of lectures will be sponsored by the Medical Education Foundation for Arkansas and financed by a self-perpetuating fund of \$80,000 at the present time. The reference committee recommends approval of the recommendation from MEFFA.

Proposed resolution submitted by the Pulaski County delegation. The wording of the proposed resolution is as follows:

WHEREAS, the State Medical Society recognizes the value of regional and national conventions and trade shows that the State cannot now attract because of limited facilities, and

WHEREAS, such conventions would meet in Arkansas in large numbers were assembly facilities provided to the State's transportation center, and

WHEREAS, additional meeting-exhibit facilities are needed for growing State organizations such as the Society, and

WHEREAS, a combination facility and sports arena would enhance the State's image and economy and would provide benefits to the citizenry of the area of moral recreation, educational, and increased State tax receipts;

BE IT HEREBY RESOLVED that the Society endorse the proposal by the Little Rock Adver-

tising and Promotion Commission to construct a 100,000 square foot convention facility and sports arena in downtown Arkansas to be able to compete for the first time in the lucrative meeting market with its peer cities in other states that already have facilities similar to the one proposed.

Mr. Speaker, your Reference Committee recommends that this resolution be accepted for information only.

Mr. Speaker, this concludes the report of your Reference Committee Number Three. I wish to thank those who appeared before this Reference Committee, my fellow members of the committee and those members of the staff who assisted me.

Mr. Speaker, I move adoption of the report of Reference Committee Number Three. The report was approved by the House as presented, with one correction incorporated in the section pertaining to the MEFFA report.

Speaker Chudy called on the Chairman of the Council, John P. Burge, for a report covering actions of the Council during the convention. Dr. Burge presented the following report:

REPORT OF THE COUNCIL

The Council met on Sunday, April 24, 1977, and considered the following items of business:

1. Received the annual report of audit and approved same as submitted.
2. Considered the list of dues exempt members as submitted by their local county medical societies and approved this listing.
3. Received the report of the ad hoc committee on State Health Department as presented by Ray Jouett. Upon motion of Orr, the report was accepted.
4. Received a report from T. E. Townsend concerning his recent presentation before the National Immunization Conference pertaining to the consent form that was required by the Federal Government and presented the opposition of the Arkansas Medical Society to this requirement.
5. Heard a rather detailed report concerning the negotiations with the Bureau of Health Insurance concerning the one area state concept for Medicare reimbursement. The Executive Committee was instructed to continue negotiations and when more acceptable terms have been reached, results of

THE FIFTY YEAR CLUB



Eva F. Dodge, Little Rock (left) is secretary of the Fifty Year Club of the Arkansas Medical Society. C. W. Jones, Sr., Benton (right) is president of the Club. In the center of the photo is the oldest member of the club, Dr. J. W. Morris of McCrory, who is 102 years of age.



Present for the 1977 breakfast of the Fifty Year Club were Eva F. Dodge, Little Rock; C. W. Jones, Benton; Jerome S. Levy, Little Rock; J. W. Morris of McCrory (who was accompanied by his daughter); R. H. Whitehead, Sr., accompanied by his son, R. H. Whitehead, Jr.; John H. Burge of Lake Village, and M. C. Hawkins, Jr., of Searcy.

negotiations should be presented to the House of Delegates at a later meeting.

6. Heard a request from the Aldersgate Medical Camp requesting contributions toward a permanent building. Received the recommendation from the Budget Committee that the same contribution be made as last year; that individual members be encouraged to donate to this worthy cause but that no donation to support the building of an infirmary be provided by the Society.
7. Received a recommendation from Raymond Irwin that Banks Blackwell was the nomination to fill the vacancy on the Arkansas State Arbitration Commission.
8. The six expiring terms on the Medical Services Review Committee were filled as follows:
 SURGERY: J. Warren Murry, Fayetteville.
 ALLERGY: Bill F. Hefley, Little Rock.
 DERMATOLOGY: Carl J. Raque, Little Rock.
 OPHTHALMOLOGY: Joe H. Lyford, Russellville.
 OTOLARYNGOLOGY: Harry L. Rounsaville, Little Rock.
 RADIOLOGY: John E. Bell, Searcy.
9. Considered the Arkansas Medical Political Action Committee appointments and authorized the Chairman of the Council to select a nominating committee to bring in a list of qualified and willing nominees to fill the vacancies on this committee.
10. Moved to re-nominate Joe Rushton to the Board of Directors of the Medical Education Foundation for Arkansas.
11. Heard a discussion by Thomas Bruce, Dean of the Medical School, regarding the Thompson bill in Congress, HR 2222, relating to house staff designation as employees and the stand of the American Medical Association to support this contention. Moved to advise the AMA and the Arkansas Congressional delegation of the opposition to this proposed action.

The Council met on Monday morning, April 25, 1977, and considered the following items of business:

1. Heard a discussion by legal counsel concerning the Society's intervention in a case which the chiropractors were seeking to be

allowed to perform acupuncture. The Council voted to seek intervention for involvement in the suit.

2. Considered the Deferred Compensation Plan for Society personnel and voted to accept this concept and authorize the formation of such a plan.
3. Voted to form an ad hoc committee to be composed of physician members of the HSA's and one member of the Council to keep the physicians aware of the status of HSA and State Health System Agency action and plans.
4. Voted to accept Pulaski County's nomination of Curry Bradburn to be the Medical Society's nominee to fill the position on the Blue Cross-Blue Shield Board at the expiration of the term of James Weber in March, 1978.
5. Considered the location for future meetings and voted to meet at the Camelot Inn in Little Rock, Arkansas, April 22-25 in 1979, and in 1980 to the Arlington Hotel in Hot Springs, April 20-23.
6. Approved the Executive Committee minutes of February 25, 1977, March 23, 1977, and April 5, 1977, as follows:
 - (a) Agreed to honor G. Thomas Jansen as president of the Southern Medical Association at the Council reception on Sunday evening, April 24, 1977.
 - (b) Authorized T. E. Townsend to attend the National Immunization Conference in Baltimore on April 4, 1977.
 - (c) Agreed to meet with representatives of the Bureau of Health Insurance in Little Rock on April 5th for discussion of the experimental project for Medicare fee payments.
 - (d) Approved rental of additional office space for the headquarters staff effective July 1, 1977.

The Council met on Tuesday morning, April 25, 1977, at 7:00 A.M. and transacted the following business:

1. Appointed the following to serve one-year terms on the Board of Directors of the Arkansas Medical Political Action Committee:
 - Ken Lilly, Fort Smith
 - Raymond Biondo, North Little Rock
 - R. Jerry Mann, Arkadelphia
 - Donald Duncan, Texarkana

J. Larry Lawson, Paragould
 G. Thomas Jansen, Little Rock
 A. E. Andrews, Texarkana
 Noel Ferguson, Harrison
 Boyce West, Clarksville
 W. P. Phillips, Fort Smith
 Mrs. Charles F. Wilkins, Russellville
 Mrs. Carl Wilson, Fort Smith
 Mrs. Kemal Kutait, Fort Smith

(Emeritus: William S. Orr, Jr., Little Rock)

2. Dr. Kirkley raised a question for discussion concerning the admissions policy of the Medical Center. After considerable discussion by Dean Bruce and questions by the Council, it was moved that the matter of investigating for information into the procedures and methods of student elections be referred to the Medical School Liaison Committee and that as soon as this information was obtained by the committee, that they report back to the Council. This motion was passed.

The Council adjourned at 8:00 A.M. so that the members could attend the Prayer Breakfast that would follow.

The Council met on Wednesday morning at 9:00 A.M. and considered the following items of business:

1. Authorized the Chairman of the Council to appoint a committee consisting of members of the HSA's and one at-large member to be a liaison committee to relate with the State Health Coordinating Council.
2. Passed a motion authorizing Rather, Beyer and Harper to change the Society's program for office overhead insurance from Continental Assurance Company to the Commercial Insurance Company.
3. Voted to request that the chairman appoint a committee to conduct a study of the feasibility and advisability of having based in Little Rock a subsidiary staff from the headquarters office in Fort Smith. The Council requested a report on the study at its next meeting.

Upon the motion of Burge, the report of the Council was approved by the House as presented.

The Associate Executive Vice President, Leah Richmond, was named "sweetheart" of the House of Delegates.

The House approved the nomination of Hugh Edwards of Searcy to succeed himself as a mem-

ber of the Arkansas State Medical Board.

Secretary Shuffield discussed H.R. 3816, the Federal Trade Commission Amendments of 1977 as proposed in Congress. The proposal would extend the FTC to cover non-profit organizations and authorize the FTC to seize control of assets, including those of physicians, pending the filing and disposition of an FTC complaint. Upon motion of Mahlon Maris, the headquarters office was requested to include an item about H.R. 3816 in the next membership newsletter.

Upon motion of William Jones, the House voted to go on record as opposing H.R. 3816 and advising members of the Arkansas Congressional delegation of such opposition.

Dr. Shuffield introduced Mr. Robert M. Cearley, Jr., and Mr. Michael W. Mitchell, associates of Mr. Eugene Warren, as legal counsel for the Society.

Speaker Chudy called on Gaither Johnston to present names of physicians selected for appointment to the ad hoc legislative assistance committee. The committee is composed of:

William S. Orr, Jr., Little Rock
 William N. Jones, Little Rock
 Jimmie J. Magie, Conway
 James L. Gardner, Hot Springs
 Gaither Johnston, Hot Springs

(Note: By action of the Council at a subsequent meeting, the chairman of the Arkansas Medical Society Political Action Committee was named an ex-officio member of the committee. The Ark-PAC chairman is W. P. Phillips of Fort Smith.)

The House approved the nomination of Hugh Edwards of Searcy to succeed himself as a member of the Arkansas State Medical Board.

The House adjourned at 11:30 A.M.

RE-ORGANIZATIONAL MEETING OF THE COUNCIL

The Council met for a brief re-organizational meeting immediately following adjournment of the House of Delegates on Wednesday. Business was transacted as follows:

1. Re-elected John P. Burge as Chairman of the Council.
2. Re-elected Alfred Kahn, Jr., Editor of the Journal.
3. Requested that Kemal Kutait continue as a member of the Board of the Arkansas Medical Political Action Committee until

the new board can meet and elect officers.

4. Directed that the Ark-PAC chairman be an ex-officio member of the ad hoc legislative assistance committee.
5. Voted to hold the next meeting of the Council on Sunday, June 26, 1977.

PROPOSED REVISION OF THE CONSTITUTION AND BY-LAWS

The following proposed revision of the Constitution and By-Laws was approved on first reading by the House of Delegates at the 1977 meeting. The proposal will again be considered by the House at the 1978 meeting for final vote of approval.

(Note: Proposed new wording is in *italics*. Copy to be deleted is in parenthesis; in some instance copy may be deleted in one section and inserted in another section.)

Constitution

ARTICLE I. Name of the Society

The name (and title) of this organization shall be the Arkansas Medical Society.

ARTICLE II. Purposes of the Society

The purposes of this Society shall be:

1. To federate and bring into one compact organization the entire medical profession of the State of Arkansas and to unite with similar societies of other states to form the American Medical Association;
2. To extend medical knowledge and advance medical science;
3. To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws;
4. To promote friendly intercourse among physicians;
5. To guard and foster the material interests of its members and to protect them against imposition;
6. To enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life; and
7. To maintain medical ethics and to secure compliance with the art of medical practice.

ARTICLE III. Component Societies

Component societies shall consist of those (county medical) societies which hold charters

from this society *as provided in the By-Laws*; (provided, however, that there may be a chartered society known as the "Student, Intern, and Resident Society" as provided in the By-Laws.)

ARTICLE IV. Composition of the Society

Section 1. *Composition*

This Society shall consist of members, delegates and guests.

Section 2. (Active Membership) *Members*

The (Active) Membership of this Society shall comprise all the (active) members of its component societies. (Only such person is eligible for active membership in a component society as possesses the degree, Doctor of Medicine, and holds an unrevoked license to practice medicine and surgery issued by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this Section [Adopted, House of Delegates, 1961 Annual Session] nor to the members of the specially chartered "Student, Intern and Resident Society.")

Section 3. Delegates

Delegates shall be those members who are elected in accordance with the Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Society.

Section 4. Guests

Any distinguished physician not a resident of this State, who is a member of his own state society, may become a guest during any annual session on invitation of the officers of this Society, and shall be accorded the privilege of participating in all of the scientific work for that session.

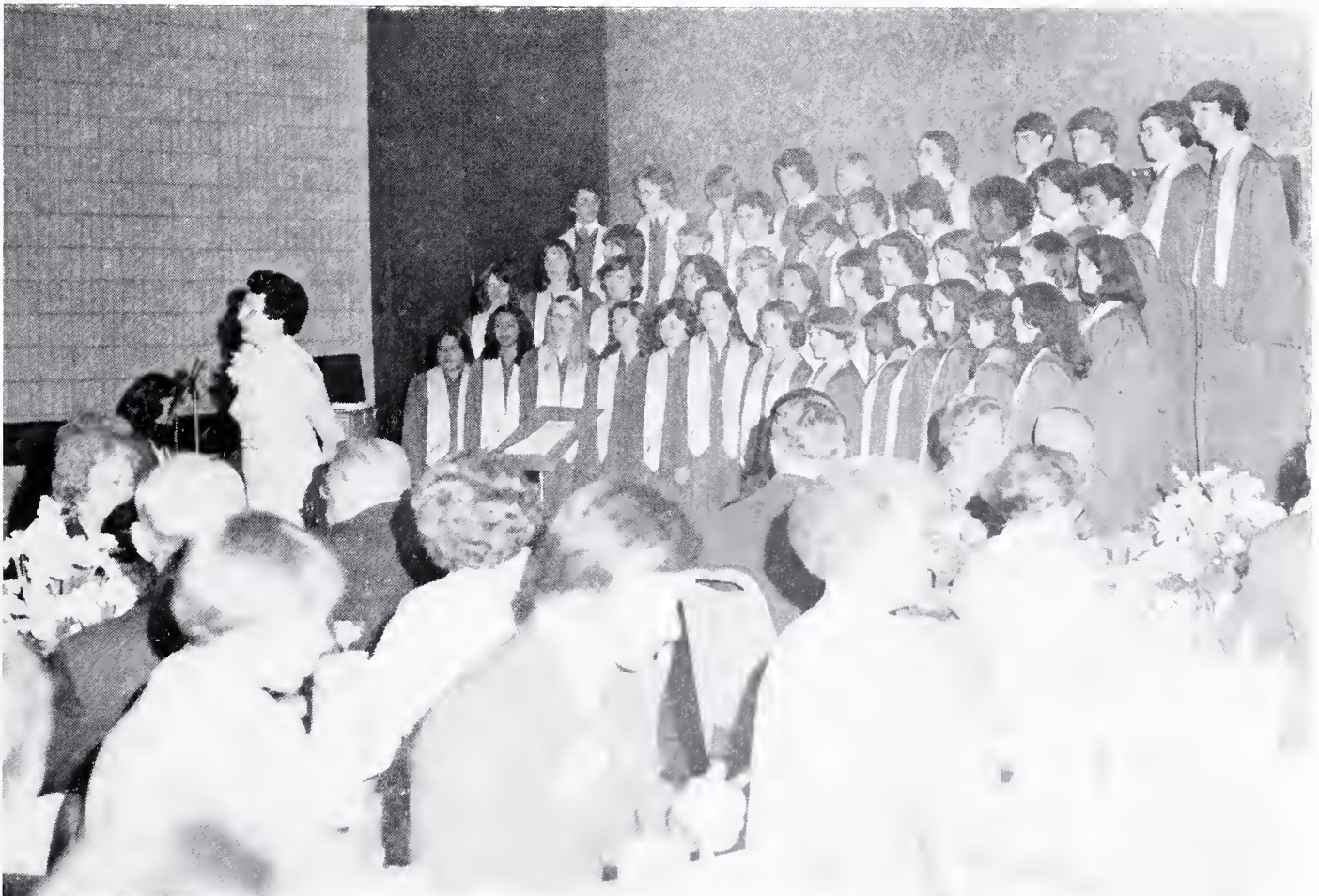
ARTICLE V. House of Delegates

The House of Delegates shall be the legislative body of the Society, and shall consist of (1) delegates elected by the component county societies *as provided in the By-Laws*; (2) the councilors, and (3) ex-officio, the president, first vice president, president-elect, speaker, vice speaker, secretary, treasurer, and past presidents of the Society, provided, however, that the ex-officio members shall have the power of voting on all subjects except the election of officers. (and [4] one delegate from the "Student, Intern, and Resident Society.")

PROCEEDINGS



President Koenig presents plaque of appreciation to Edna Earle Massey, Choral Director of the Northside High School Mixed Chorus. An ensemble from the mixed chorus performed at the banquet. Standing behind those seated at the head table is one of Miss Massey's students, Ken Lilly of Fort Smith.



Edna Earle Massey presented an outstanding musical program with an ensemble from the Northside High School Mixed Chorus of Fort Smith. Inaugural Banquet, April 26, 1977.

ARTICLE VI. Council

Section 1. Duties

The Council shall be the executive body of the House of Delegates and between sessions of the House shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall constitute the Finance Committee of the House of Delegates.

Section 2. Composition

The Council shall consist of the councilors, the president, first vice president, president-elect, secretary and treasurer. The speaker and vice speaker of the House of Delegates and the past presidents shall be members ex-officio without vote. There shall be two councilors from each councilor district to serve staggered terms of two years each. All councilors shall have equal voting privileges. A majority of the voting members shall constitute a quorum. (Besides its duties mentioned in the By-Laws, the Council shall constitute the Finance Committee of the House of Delegates.)

Section 3. Executive Committee

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council. The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have such powers and duties as provided in the By-Laws and as may be defined from time to time by resolution of the Council.

ARTICLE VII. Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such councilor district societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component societies.

ARTICLE VIII. Sessions and Meetings

Section 1.

The Society shall hold an Annual Session, during which there shall be held daily general meetings, which shall be open to all registered members and guests.

Section 2.

The place (for holding each Annual Session shall be decided by the House of Delegates two years in advance. The) and time for holding each

Annual Session shall be decided (by the Committee on Arrangements of the Arkansas Medical Society and the president and the executive vice president) by the Council.

ARTICLE IX. Officers

(Section 1.)

The officers of this Society shall be a president, president-elect, three vice presidents, Speaker of the House of Delegates, Vice Speaker of the House of Delegates, a secretary, a treasurer, and twenty councilors (and an executive vice president). Their qualifications and terms of office shall be as provided in the By-Laws.

(Section 2.)

(The president-elect and vice presidents, the speaker and vice speaker, the secretary and treasurer shall be elected annually, each to serve a one-year term. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year. Each year, ten councilors shall be elected to serve a two-year term. All officers shall serve until their successors are installed.)

ARTICLE X. Funds and Expenses

Section 1.

Funds shall be raised by an equal per capita assessment on each component society except as provided in the By-Laws. The amount of the assessment shall be fixed by the House of Delegates (but shall not exceed the sum of \$50.00 per capita per annum except) on four-fifths vote of the delegates present.

Section 2.

Funds may also be raised by voluntary contributions, from the Society's publications and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Council before action is taken thereon.

ARTICLE XI. Referendum

Section 1.

A general meeting of the Society may, by a two-thirds vote of the members present, order a general referendum on any questions pending before the House of Delegates and when so or-

dered the House of Delegates shall submit such questions to the members of the Society, who may vote by mail or in person, if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Section 2.

The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding upon the House of Delegates.

ARTICLE XII. The Seal

The Society shall have a common seal, with power to break, change or renew the same at pleasure, by action of the House of Delegates.

ARTICLE XIII. Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates present at any annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society.

By-Laws

CHAPTER 1. Membership

Section 1. *Membership in Component Societies*

(A) Membership in this Society shall be by membership in one of its component societies.

(Section 1) (B)

The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment shall be prima facie evidence of membership in this Society.

Section 2. *Membership Classifications*

(A) Active Membership

The Active Membership of this Society shall be comprised of all the active members of its component societies. Only such person is eligible for active membership in a component society as possesses the degree Doctor of Medicine and holds an unrevoked license to practice medicine and surgery issued by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any

component society at the time of the adoption of this Section [Adopted, House of Delegates, 1961 Annual Session] nor to the members of the specially chartered "Student and Intern and Resident Societies."

(Section 4) (B) Life Membership

An active member who (shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendations of such society, be granted the status of a Life Member.) *has continuously been a member of organized medicine and has either (1) attained age seventy or (2) practiced forty-five years shall be eligible for life membership and, upon the recommendation of his component society, shall be granted such status by the House of Delegates.* (Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.) *Life members shall have the right to vote, hold office, and all other privileges of membership in this Society.*

(C) Emeritus Membership

An active member who has continuously been a member of organized medicine for less than forty-five years and who has fully retired from the practice of medicine shall be eligible for Emeritus Membership. Such membership shall be granted by the House of Delegates upon the recommendation of the member's component society. Emeritus members shall not have the right to vote or hold office, but shall have all other privileges of membership in this Society.

(Section 5) (D) Affiliate Membership

An active member in good standing in his (county) component society may (upon the recommendation of such society) be granted affiliate membership (with full voting and other privileges) where one or more of the following conditions exist: (retirement from active practice) physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and

a member must be recommended each year for such special status by (the secretary and president of) his (county) *component* society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges (and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.) *except that he shall not have the right to vote or hold office.*

(Section 7) (E) Military Members

(A. Regular members of the Arkansas Medical Society who are in) *An active member in good standing in his component society who enters the service of the armed forces of the United States, not as a career officer(s), may be classified as a military member(s), and carried on the roll(s) of (their) his (respective county societies) component society as such. (Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them each year.)*

(B. Young physicians going from internship or residency to military service shall be granted military membership with dues exemption, provided the request for such membership is transmitted through a component society. Such military membership shall be on an annual basis only. The requirements for active membership prior to exemption shall be waived for such military members. Such members shall enjoy full membership privileges except that they may not vote or hold office, and certificates of membership shall be issued to them. This section shall not be construed to mean that military membership may be granted to those physicians who enter military service after a period of active practice during which time they were not members of the Society.)

A physician entering service of the armed forces of the United States, not as a career officer, upon completion of internship or residency training shall be eligible for military membership upon the request of a component society.

Military members shall enjoy full membership privileges except that they shall not have the right to vote or hold office.

(F) Associate Members

Physicians who are licensed to practice medicine and surgery in this State as well as an adjacent state and are engaged in the delivery of health services in both states may become associate members of this Society provided they are active members of the state medical association in the adjoining state. Associate members may vote as provided in this Constitution and By-Laws and may serve on all committees, but shall not hold office.

(G) Intern and Resident Members

Physicians licensed to practice medicine and surgery in this State who are engaged in filling intern or residency appointments in approved hospitals shall be eligible for membership in this Society. Such membership shall end with termination of this status. Such members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

(H) Student Members

Students enrolled in an approved medical school shall be eligible for student membership in this Society. Student members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

Section 3. Dues Exemption

(A) *Life, Emeritus, Affiliate, Military, Intern and Resident and Student members shall be exempt from the payment of dues and assessments.*

(B) *Associate members shall pay one-half of all dues and assessments.*

Section (2) 4. Suspension or Expulsion

Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Section (3) 5. Meeting Registration

Each member, each member chosen as a delegate, and each guest in attendance at an annual session of the Society shall register in such manner as may be provided by the (secretary) *executive vice president*, giving his name, address, and the component society of which he is a member. When his right to membership has been verified



W. Payton Kolb, Little Rock, is administered oath of office of the presidency of the Arkansas Medical Society by A. S. Koemig, Jr.



W. Payton Kolb, President, 1977-78, makes his inaugural address at the banquet on April 26, 1977.

by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Section 6. Continuing Medical Education

Continued membership in the Society is dependent upon compliance with continuing medical education requirements as specified below:

(A) Classification of Members affected

All members of the Society will comply with this charge, except those retired from practice, those still engaged in their formal medical or specialty education, non-resident members and those in full-time administrative positions. Those members unable to fulfill requirements because of impaired health or extenuating circumstances may be exempt on a temporary basis by the Committee on Continuing Medical Education.

(B) Central Authority

The Committee on Continuing Medical Education will be charged with the determination of the requirements for maintaining membership in the Society. Their initial determination as well as any changes recommended must be submitted to the House of Delegates for approval. Alterations in the number of hours of continuing medical education required may be made at any regular meeting of the Society by the House of Delegates. The Council will serve as an arbitration committee if a decision of the Committee on Continuing Medical Education is questioned.

(C) Acceptable Alternate Plans

Alternate plans of acceptable requirements which would be considered equal to or exceeding the requirements established by the Committee on Medical Education and the House of Delegates would include:

- (1) Compliance with the requirements for the Physician's Recognition Award of the American Medical Association;*
- (2) Compliance with the continuing education requirements of the American Academy of Family Physicians;*
- (3) Documentation of recertification by any specialty board provided the physician*

limits his practice to the definition of the specialty;

- (4) The continuing medical education requirements of specialty societies other than the American Academy of Family Physicians, should such become established. Such programs would be subject to review by the Committee on Medical Education prior to their acceptance.*

(D) Three-year continuum

Each member subject to continuing medical education requirements shall have three years to complete the required hours. The three-year continuum begins January 1 of the initial year.

CHAPTER II. Annual and Special Sessions of the Society

Section 1. The Society shall hold an annual session at such place as has been fixed by the (House of Delegates) Council at the annual session two years in advance.

Section 2. Special meetings of either the Society or of the House of Delegates shall be called by the President on petition of the Council, twenty delegates or fifty members.

(Section 3. In the event the previously selected place is unable to be host to the Annual Session, the meeting place may then be designated by the Council.)

CHAPTER III. General Meetings

Section 1. All registered members may attend and participate in the proceedings and discussions of the general meetings and of the Section. The general meeting shall be presided over by the president or by one of the vice presidents, and before them shall be heard the address of the president and the orations, and such scientific papers and discussions as may be arranged for in the program.

Section 2. The general meetings may recommend to the House of Delegates the appointment of committees or commissions for scientific investigations of special interest and importance to the profession and public.

CHAPTER IV. House of Delegates

Section 1.

The House of Delegates shall meet on the first day of the Annual Session. It may adjourn from

time to time as may be necessary to complete its business; provided that its hours shall *not* conflict (as little as possible) with the general meetings.

Section (1) 2.

The order of business shall be arranged as a separate section of the *Annual Session* program.

Section (1) 3.

The House of Delegates shall establish its own rules of procedure.

Section 4. *Items of Business*

(A) *All reports and resolutions received by the executive vice president sixty days prior to the annual meeting of the House of Delegates of this Society shall be printed in the Journal of the Arkansas Medical Society in the month preceding the meeting.*

(B) *All reports, resolutions, and other items of business received by the executive vice president twenty days prior to a meeting of the House of Delegates shall be included in the meeting agenda.*

(C) *Any item of business not submitted to the executive vice president twenty days prior to the meeting of the House of Delegates must have a two-thirds consent of attending delegates for introduction at such session.*

Section 5. *Reference Committees*

(A) *The Speaker of the House of Delegates shall appoint an appropriate number of reference committees from the membership of the House of Delegates. The chairman shall be appointed by the Speaker. The reference committees shall serve only during the convention for which they are appointed.*

(B) *All reports of committees, reports of officers, and resolutions submitted for consideration of the House of Delegates shall be referred to a reference committee, unless otherwise provided in these By-Laws, or unless otherwise ordered by a two-thirds vote of the House of Delegates.*

(C) *The reference committee shall hold an open hearing at which any member of the Society may speak on proposals before the committee.*

(D) *The reference committee shall recommend to the House of Delegates an appropriate course of action on each proposal referred to the committee.*

Section (2) 6. *Representation of Component Societies*

(A) (1) *Each (component) regular county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five Arkansas Medical Society members, and one for each major fraction thereof, provided that its annual report and assessments are in the hands of the (secretary) executive vice president by March 1st of each year. Each county society, however, regardless of its number of members, which has complied with this section, shall be entitled to one delegate.*

(2) *Two associate members of a component society shall count as one full membership in determining delegate representation of that component society.*

(B) *The component society composed of intern and resident members shall be entitled to one delegate to the House of Delegates.*

(C) *The component society composed of student members shall be entitled to one delegate to the House of Delegates.*

Section (3) 7. *A majority of the delegates registered shall constitute a quorum.*

Section (4) 8. (It) *The House of Delegates shall, through its officers, council and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping stone to future ones of higher interest.*

Section (5) 9. *It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent on the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.*

Section (6) 10. *It shall make careful inquiry into the condition of the profession of each county in the state, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician*

in every county of the state who is reputable and eligible has been brought under medical society influence.

Section (7) 11. It shall encourage postgraduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Section (8) 12. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that body.

Section (9) 13. It shall divide the state into councilor districts, specifying what counties each district shall include, and, when the best interest of the Society and profession will be promoted thereby, organize in each a district medical society, and all members of component (county) societies shall be members in such district society.

Section (10) 14. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Section (11) 15. It shall approve all memorials and resolutions issued in the name of the Society before they shall become effective.

Section (12) 16. In case of vacancy in the office of delegate, the House of Delegates shall have the authority to seat any member of that county society in attendance at said meeting as delegate, with full right to perform all the duties of that office.

CHAPTER V. Election of officers

Section 1. Nominating Committee

(Section 2. Immediately after) (A) Prior to adjournment of the first meeting of the House of Delegates at each annual session, the delegates from the component societies of each councilor district shall meet, the councilor *not subject to re-election* acting as chairman, and select one delegate from each district to form a committee on nominations. This committee shall consist of ten delegates, one from each councilor district. It shall meet and organize by selecting a chairman and secretary. It shall be the duty of this committee to consult with members of the Society and to hold one or more meetings at which

time the best interest of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of two or more members for the office of president-elect and of one member for each of the other offices to be filled at the annual session. No two candidates for president-elect shall be named from the same county.

(Section 4) (B) The report of the Nominating Committee shall be the first order of business of the House of Delegates, after reading of the minutes, on the last day of the annual session.

Section (6) 2. Nothing in this Chapter shall be construed to prevent additional nominations being made by members of the House of Delegates.

Section (7) 3. Any person known to have solicited votes for or sought any office within the gift of this Society shall be ineligible for any office for two years.

Section (7) 4. No member shall be eligible to any office of this Society who is not in attendance at the meeting at which the election is held.

Section (5) 5. The election of officers shall be the second order of business of the House of Delegates on the last day of the Annual Session.

Section (3) 6. Election by Ballot

All elections shall be by ballot, except where there is only one candidate, when election may be made by acclamation, and a majority of the votes cast shall be necessary to elect.

Section 7. Each year, ten councilors shall be elected to serve a two-year term; all other terms of office are for one year. All officers shall serve until their successors are installed.

Section 8. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year.

Section 9. Vacancy in Presidency

In the event of the death or removal of the president, the president-elect shall succeed to the presidency to serve the remainder of that year and the ensuing year.

Section (1) 10. *Vacancy in office of president-elect*

In the event of the death or removal of the



A. S. Koenig, Jr., Fort Smith, Society president for 1977-78, was master of ceremonies for the inaugural banquet Tuesday evening, April 26, 1977.



Immediately after taking the oath of office of the presidency of the Arkansas Medical Society, W. Payton Kolb receives applause of the members at the inaugural banquet. Mrs. Kolb is to the left of the podium.

president-elect or his inability to serve, the House of Delegates shall meet within thirty days in a special session or otherwise, called by the president, to nominate and elect a president-elect, provided that such death, removal or inability to serve shall occur not less than sixty days prior to the annual session, in which event the election shall be at the forthcoming annual session.

Section 11. Councilor vacancy

In the event of the death or resignation of a district councilor, the Council shall appoint a member of the district to fill the unexpired term. The remaining councilor for the district shall confer with members in the district and make nominations for the vacancy to the Council.

Section 12. Vacancy in office of Secretary or Treasurer

In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VI. Duties of Officers

Section 1. President

The president shall preside at all meetings of the Society and shall appoint all committees not otherwise provided for. He shall deliver an annual address at such time as may be arranged, and shall perform such duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councilors in building up the county societies, and in making their work more practical and useful.

Section 2. President-elect

The president-elect shall be a member of the Council and the House of Delegates. It shall be his duty to assist the president in visiting the component and district societies, and to familiarize himself with, and prepare himself for, the performance of his duties when he shall have succeeded to the presidency of the Society.

Section 3. Vice Presidents

The first vice president shall assist the president in the discharge of his duties. In the event of the president's temporary inability to serve, the first vice president shall serve in his stead.

The vice presidents may be assigned by the president of the Society as ex-officio members of certain committees of the Society. The vice

presidents' responsibilities will be to stimulate, to guide, to maintain liaison, and to otherwise assist the assigned committees and their respective chairmen in the performance of their activities. In no instance will the vice president usurp or supplant the committee chairman in his responsibilities. The vice president shall not have a vote in the affairs of the committees to which he is assigned under provisions of this section.

Section 4. Treasurer

The treasurer shall give bond in the sum as directed by the Council. He shall demand and receive all funds due the Society, together with bequests and donations. He shall pay money out of the treasury only on a written order of the (secretary) *executive vice president*; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Section 5. Secretary

The secretary, in case of vacancy in the office of executive vice president, shall assume the duties of that office pending the filling of the vacancy, and shall perform such other duties as are imposed by the Constitution and By-Laws. He shall be the scientific and professional advisor of the executive vice president, and shall assist the executive vice president concerning all matters without the jurisdiction of one not holding the degree of Doctor of Medicine. The secretary, as defined by the Constitution, shall be known as the Constitutional Secretary. (and shall give bond in the sum as directed by the Council. The amount of his salary shall be fixed by the Council.)

Section 6. (7) The Speaker of the House

The speaker of the House of Delegates shall preside at the meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require.

Section 7. (8) The Vice Speaker

The vice speaker shall officiate for the speaker in the latter's absence or at his request. In case of death, resignation, or removal of the speaker, the vice speaker shall officiate during the unexpired term.

(Section 9.)

(The executive vice president shall be the

directing manager of the Society's headquarters and the Journal offices, and shall supervise the work of all salaried employees in the Society's offices. Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society. He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keeping himself qualified to perform the services herein mentioned. He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council, and the officers of the Society. The amount of his salary shall be fixed by the Council and he shall give bond in the same as directed by the Council.)

Section 8. Councilors

Each councilor shall be organizer, peacemaker and censor for his district. The two councilors in each district shall be designated "senior" and "junior" on the basis of length of tenure.

It is recommended that the councilors in each district call a meeting of the members in the district at least once each year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for informing, improving, and increasing the knowledge and zeal of the component societies and their members.

The councilors shall jointly prepare and submit to the Council prior to the Annual Session a written report of their work and of the condition of the profession within their district.

The necessary traveling expenses incurred by each councilor in the line of the duties herein imposed may be allowed on submission of a properly itemized statement.

Section 9. Chairman of the Council

The chairman of the Council shall (1) preside at all meetings of the Council, (2) serve as chairman of the Executive Committee of the Council, and (3) appoint the Council Committees.

CHAPTER VII. Council

Section (3) 1. Power and Duties

A. The Council shall be the executive body of the House of Delegates and between annual sessions exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members of component societies, on which an appeal is taken from the decision of an individual council. *The Council shall elect a chairman following election of the Council members by the House of Delegates.*

B. *The Council shall be responsible for the conduct of all the business affairs of the Society. It shall employ a chief executive officer who shall be known as the executive vice president.*

(a) *The executive vice president shall be responsible for implementation of policies of the Society and conducting affairs of the Society under direction of the Council and its Executive Committee, the House of Delegates and the president.* The executive vice president shall be the directing manager of the Society's headquarters office and the Journal office, and shall supervise the work of all salaried employees in the Society's offices. (Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society.) He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keeping himself qualified to perform the services herein mentioned. (He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council and the officers of this Society.) The amount of his salary shall be fixed by the Council and he shall give bond (in the same) as directed by the Council.

Section (4) 2. Organizing Component Societies

The Council shall have authority to organize

the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Section (5) 3. *Publications and Records*

The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Society and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the treasurer of the Society. It shall annually audit the accounts of the treasurer and secretary and other agents of this society and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. (In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next Annual Session.)

Section (1) 4. *Meetings*

The Council shall meet on the first day of the Annual Session and daily during the session and at such other times as (necessity may require) *necessary*, subject to the call of the chairman or on petition of three councilors. It shall meet on the last day of the Annual Session of the Society to organize and outline the work for the ensuing year. *Between annual sessions, the Council shall be expected to meet at least bi-monthly.*

Section (1) 5. *Reporting*

The Council shall, through its chairman, make an annual written report to the House of Delegates.

Section 6. *Bonds*

The Council shall have authority to accept or reject all bonds.

Section 7. *Committees*

(A) *Executive Committee*

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council.

The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have the power and authority to act for the Council between meetings of that body; all actions of the Executive Committee shall require approval or ratification of the Council. The Executive Committee shall consider matters referred to it by officers of the Society and shall report its findings or recommendations to the Council.

(B) *Council Committees*

The chairman shall, with concurrence of the Council, appoint such committees as are necessary to carry out the duties assigned to the Council by the By-Laws and House of Delegates. At the discretion of the Council, the committees shall be of three types: (1) standing committees with unlimited membership tenure; (2) standing committees with staggered membership terms; and (3) ad hoc committees as may be warranted for specific purposes.

Section 8. *Appointments to fill vacancies*

The Council shall, by appointment, fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates.

CHAPTER VIII. Committees

Section 1.

(A) The standing committees of this Society shall be as follows:

1. Committee on Cancer Control
2. Committee on Medical Legislation/
Sub-Committee on National Legislation
3. Committee on Public Health/Sub-Committees on Rural Health, Maternal and Child Welfare, Tuberculosis, Heart Association, Liaison with Nursing Profession, etc.
4. Committee on *Continuing* Medical Education
5. Committee on Hospitals/Hospital liaison and Arkansas Hospital Association
6. Committee on Public Relations/Speakers' Bureau, Liaison with Auxiliary, Liaison with Medical Assistants, Civilian Defense, etc.
7. Committee on Annual Session (Committee on Scientific Work and Exhibits)

PROCEEDINGS



Master of ceremonies of the inaugural banquet, A. S. Koenig, Jr., at the podium. Others seated at the head table included John P. Burge, Chairman of the Council, Mrs. Kolb, W. Payton Kolb, Dr. and Mrs. Elvin Shuffield (Secretary of the Society) and Dr. and Mrs. Ken Lilly (Convention Chairman). Also seated at the head table but not visible in the photo were Mrs. Burge and Mr. and Mrs. Paul Schaefer (former Executive Vice President).



A. S. Koenig, Jr., receives a plaque from President Kolb which expresses appreciation for Dr. Koenig's service to the profession and the State.

8. (Committee on Veterans Administration Affairs)
9. Committee on Insurance
10. Committee on Medicine and Religion
11. Committee on Aging
12. Committee on Mental Health

(B) Additional committees shall be considered sub-committees of the appropriate standing committee and one member of the standing committee shall be a member of the sub-committee.

(C) Unless otherwise provided, these committees shall be appointed by the president for three-year staggered terms. The committee shall consist of not less than six members each, with each president appointing two members for a three-year period. Any vacancies through death, removal or resignation may be filled by the president at the time the vacancy occurs and for the unexpired term of the vacancy. The president and the secretary shall be ex-officio members of all committees.

Section 2. *The duties of the committee shall be as follows:*

(Section 2) Committee on Cancer Control. Shall represent the Society in all activities concerned with cancer in the State. Shall directly supervise the activities of the Cancer Control Committee of the Arkansas Medical Society Auxiliary. Shall cooperate with all agencies within the State of Arkansas dedicated to the problem of cancer.

(Section 3.)

(The Committee on Scientific Work shall consist of six members of which the secretary shall be one. Subject to the instructions of the House of Delegates, this committee shall determine the character and scope of the scientific program for each Annual Session, determining the order in which papers and discussions shall be presented.)

(Section 4.) Committee on Medical Legislation. Shall represent the Society in all legislative practice. It shall keep in touch with professional and public opinion and maintain active relations with the Department of Public Affairs of the American Medical Association. It shall, at all times, endeavor to shape and guide legislation with a view to securing the best results for the whole people. It shall strive to organize professional influence so as to promote the general

good of the community in local, state, and national affairs and elections. During sessions of the General Assembly, it shall keep itself informed as to the bills that are introduced, and shall inform the members of the Society through its Journal or special bulletins to the end that legislation inimical to the medical profession and the public shall be defeated, and legislation fostering the interest of the public health and medical practice shall be enacted into law.

(Section 5. The Committee on Health and Public Instruction)

Committee on Public Health. Shall represent the Society in those affairs having for their object the improvement in public and personal health, the prevention of epidemics, and the instruction of the people. It shall maintain close relations with the Board of Health, the State Health Officer, and the various health officials, assisting in the adoption of public health programs, the enforcement of sanitary laws, and to exercise leadership in the health problems of school children through a sub-committee on physical fitness and school health. As occasion demands, or when thought advisable, it shall supervise the preparation of articles of timely interest for publication in the newspapers or for broadcasting over the radio for the instruction of the public.

(Section 6.)

The Committee on *Continuing* Medical Education shall be responsible for consideration of all questions pertaining to medical education. It shall maintain close relations with the officials and faculty of the University of Arkansas College of Medicine, and Arkansas Academy of Family Physicians, and other groups interested in maintaining and improving medical education in our State institutions. It shall foster continuous efforts to increase excellence in the system of postgraduate education to serve the cause of medicine and to assure the public of continuing improvement in the postgraduate training of physicians in practice. (The committee shall consist of ten members, one from each councilor district.)

The Committee shall determine continuing medical education requirements for maintaining membership in the Society, as provided in these By-Laws, and shall establish methods of reporting in compliance with the continuing medical education requirements.

The Committee on Continuing Medical Education shall consist of seven members appointed by the president as follows: The dean or a representative of the University of Arkansas College of Medicine; one representative of the Arkansas Academy of Family Physicians from three nominations by that group; one family physician member of the Society selected by the president; one surgeon selected from three nominees from the Arkansas Chapter of the American College of Surgeons; one internist selected from three nominations from the Arkansas Chapter, American College of Physicians, and two other members of the Society, not in the specialty categories listed above, selected by the president. The committee chairman shall be named by the president.

(Section 7.)

Committee on Hospitals. The Committee on Hospitals shall have referred to it all questions pertaining to hospitals and their operations; hospitalization of patients and hospital-physician relationships.

(Section 8.)

Committee on Public Relations. The Committee shall have referred to it all questions wherein the medical profession as represented by the Society is called upon for advice, for participation in private or public affairs and projects not coming within the duties outlined for the other committees. It shall be the publicity committee of the Society and shall have charge of all publicity issued in the name of the Society. The sub-committee on professional relations shall function under this committee.

(Section 9.)

Committee on Annual Session. The committee (on Scientific work and exhibits) shall determine the character and scope of the scientific (proceedings) program for each annual session. It shall prepare a scientific program for each annual session. It shall solicit and collect material from institutions and individual physicians of the State that is of scientific interest. This it shall arrange and exhibit at each annual session. It should particularly strive to obtain material that will more fully illustrate the papers presented in the general meeting of the Society.

(Section 11.)

The Committee (on Arrangements for the Annual Session) shall provide suitable accommoda-



W. Payton Kolb, Little Rock, president for 1977-78, and George F. Wynne, Warren, president-elect.

tions for the meeting places of the Society and the House of Delegates, the scientific exhibits, the committees, and shall have general charge of all arrangements. Its chairman shall report an outline of the arrangements to the (secretary) *Executive Vice President* for publication in the program and shall make additional announcements during the session as occasion may require.

(Section 10.)

Committee on Insurance. The Committee on Insurance shall deal with all matters pertaining to insurance, including liaison with Blue Cross-Blue Shield.

(Section 12.)

The Committee on Medicine and Religion shall work to create and enhance communication between physician and clergyman which will lead to the most effective care and treatment of the patient in which both are interested. It shall study the areas in which there is or may be continuing correlation involving medicine and religion.

(Section 13.)

The Committee on Aging shall study the problems of the aged and the aging. It shall provide leadership and initiative in meeting the health

and medical care requirements of older persons. It shall foster the development of effective methods of achieving the best possible social and spiritual atmosphere for the elderly.

(Section 14.)

The Committee on Mental Health shall study the problems of the mentally ill. It shall foster development of programs to improve the care and treatment of mental patients and mental retardates.

CHAPTER IX. (COUNTY) COMPONENT SOCIETIES

Section 1. *Charters for Component Societies*

(A) All (County) component societies now in affiliation with this Society or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application *and submission of their Constitution and By-Laws*, receive a charter from and become a component part of this Society.

(Section 2.)

(B) As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

(Section 3.)

(C) Charters shall be issued only on approval of the Council, and shall be signed by the president and secretary of this Society. Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Section 2. *Component organization*

(Section 4.)

Only one component medical society shall be chartered in any county, *except in the county where the University of Arkansas College of Medicine is located. In that county there may be, in addition to the regular county medical society, one component society for interns and residents and one component society for medical students.* Where more than one component society exists in any other county, friendly overtures and concessions shall be made, with the aid of the councilor for the district if necessary, and all of the members brought into one organization. In

case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Section (5) 3. *Membership Qualifications*

Each (county) *component* society shall be the judge of the qualifications of its own members, but as such societies are the only portals of this Society and to the American Medical Association, every reputable (physician) *person* who possesses the qualifications for membership required by (Article IV, Section 2) *Chapter 1, Section 2* of these By-Laws, and who does not practice or claim to practice nor lend support to any exclusive system of medicine, shall be eligible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every physician in the county to become a member.

Section (6) 4. *Appeal to the Council*

Any physician who may feel aggrieved by the action of the Society of his county in refusing him membership or in censoring, suspending, or expelling him, shall have the right to appeal to the Council, and its decision shall be final except that a county society shall at all times, be permitted to appeal or refer questions involving membership to the House of Delegates of the Arkansas Medical Society for final determination. That the Council may be aided in rendering just decisions, it is necessary that the By-Laws of each component society provide in detail the routine to be followed in preferring charges and trying any member accused of and tried for any kind of unprofessional conduct.

(Section 7.) In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts; but in case of every appeal, both as a Board and as individual councilors in district and

county work, efforts at conciliation and compromise shall precede all such hearings.

Section (8) 5. *Transfers*

When a member in good standing in a component (county) society moves to another county in this State, he shall be given a written certificate of these facts by the secretary of his society, without cost, for transmission to the secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he moves, such member shall be considered to be in good standing in the county society from which he was certified and in the State Society to the end of the period for which his dues have been paid.

Section (9) 6. *County Jurisdiction*

A physician living near a county line may hold his membership in that county *society* most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

Section (10) 7. *Efforts to Increase Membership*

Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Section 8. *Representation in House of Delegates*

(A) *Each regular county medical society shall be entitled to one delegate to the House of Delegates of this Society for each twenty-five members or major fraction thereof, provided that the society has complied with other provisions of these By-Laws, and provided that each component society shall be entitled to one delegate.*

(B) *The component society of interns and residents shall be entitled to one delegate to the House of Delegates.*

(C) *The component society of medical students shall be entitled to one delegate to the House of Delegates.*

(Section 11.)

(D) At some meeting in advance of the annual session of this society, each (county) *component*



Mrs. Walter Mizell of Benton is president-elect of the Arkansas Medical Society Auxiliary and Mrs. Kemal Kutait of Fort Smith is president for 1977-78.

society shall elect a delegate or delegates to represent it in the House of Delegates (of this Society, in the proportion of one delegate to each twenty-five members and one for each major fraction thereof) *as provided in these By-Laws* and the secretary of the county society shall send a list of such delegates to the (secretary) *Executive Vice President* of this Society at least ten days before the annual session.

Section (12.) 9. *Responsibilities of Secretary*

The secretary of each component society shall keep a roster of its members, and of the non-affiliated (registered) *licensed* physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year.

Section (13.) 10. *Assessment*

The secretary of each component society shall

forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county, to the secretary of this Society on January 1, and not later than March 1 of each year.

Section (14.) 11. *Failure to Pay Assessment*

Any county society which fails to pay its assessment, or make the report required, on or before March 1, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Society or of the House of Delegates until such requirements have been met.

CHAPTER X. *Miscellaneous*

Section 1.

No address or paper before (the) *this* Society, except those of the president and orators, shall occupy more than thirty minutes in its delivery and no member shall speak longer than five minutes nor more than once on any subject, except by unanimous consent.

Section 2.

All papers read before the Society or any of the sections shall become its property. Each paper shall be deposited with the Secretary when read.

CHAPTER XI. *Parliamentary Procedure*

(Section 1.)

The deliberations of this Society shall be governed by parliamentary usage as contained in Sturgis Rules of Parliamentary Procedure, when not in conflict with this Constitution and By-Laws.

(Section 2.)

(All items expected to be considered at the annual meeting of the House of Delegates of this Society must be printed in the Journal of the Arkansas Medical Society in the month preceding the annual meeting. All resolutions to be submitted to the House of Delegates at the annual meeting must be received in the office of the Executive Vice President twenty days prior to said meeting. Any new business proposed during the first session of the House of Delegates of this Society must have a two-thirds majority of the attending delegates voting for such introduction into this session. Any new resolutions or other new business proposed for introduction to this House of Delegates after the first session in each annual meeting must have two-thirds consent of attending delegates before its introduction).

CHAPTER XII. *Medical Ethics*

The Principles of Medical Ethics promulgated by the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

CHAPTER XIII. *Amendments*

The House of Delegates may amend any chapter of these By-Laws by a two-thirds vote of the delegates present at any annual session, provided that each amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society, or sent officially to each component society at least two months before the meeting at which final action is to be taken.



SCIENTIFIC SESSION

The theme for the scientific program was "Common Problems for Rural Physicians." First Vice President Mahlon Maris presided at the Monday morning session. Noel Lawson of the University of Arkansas College of Medicine spoke on "Recent Advances in Monitoring of the Critically Ill and Injured;" Robert Rakel of the University of Iowa College of Medicine presented a paper entitled "Is the Annual Physical Worthless?"; and Charles E. Reed of the University of Wisconsin spoke on "Management of Asthma."

Boyce W. West, Second Vice President, presided at the program Monday afternoon. The session opened with "Emotional Reactions to Physical Illness" by John J. Schwab of the University of Louisville Health Sciences Center. W. P. Phillips of Fort Smith discussed "Office Gynecology."

"Sprained Ankles" was presented by J. Martin Lipke of the Veterans Administration Hospital in Little Rock, followed by "Limping Child" discussed by Raymond T. Morrissey of the Arkansas Children's Hospital. The last speaker of the afternoon was Alan I. Mandell of Memphis, who spoke on "Screening for Glaucoma with the Ophthalmoscope."

The Tuesday morning program began with "Pre-Hospital Care in a Rural Area," a presentation by James T. Blackmon of Arkadelphia. The presiding officer was John M. Hestir, Third Vice President. Jon A. Vanderhoof of the University of Nebraska Medical Center spoke on "Common Problems in Pediatric Gastroenterology" and "Rhinitis or Sinusitis" was presented by Charles Norris of the University of Kansas School of Medicine.

SCIENTIFIC EXHIBITS

Twenty-five scientific exhibits were displayed during the meeting. The following three exhibits were selected as the most outstanding:

1. "Major Types of Scoliosis — Idiopathic, Congenital, Paralytic," Samuel G. Thompson, John D. Christian, William L. Steele, and

Richard J. Nasca, Little Rock.

2. "Snakebite in Arkansas," Nathan E. Strickland, Batesville.
3. "Abdominal Imaging," Doyne Dodd, Little Rock.

RELATED MEETINGS

The Alan Cazort Allergy Society of Arkansas met on Monday, April 25, with Charles E. Reed of Madison, Wisconsin, as guest speaker.

The Arkansas Academy of Ophthalmology met at 9:00 A.M. on Tuesday, April 26, with the scientific program presented by Alan Mandell of Memphis. Mr. Phillip Reisbeck of the Medical Eye Service of America was also a speaker.

The Arkansas Chapter of the American College of Radiology met on Tuesday, April 26th, beginning at 10:00 A.M. Charles Boyd and Donald Herzberg were guest speakers.

The Arkansas Society of Internal Medicine held a luncheon meeting on Tuesday, followed by a scientific program sponsored by the Department of Continuing Education of the University of Arkansas College of Medicine. Moderators and speakers included George Ackerman,

Thomas Monson, Joseph Bissett, Joseph H. Bates, George Griggs, Galen Barbour, and Charles Nolan.

The Neurosurgery Section of the Arkansas Medical Society held a luncheon business meeting on Tuesday, April 26.

The Arkansas Society of Urologists met on Tuesday for a business meeting and Pyelogram Conference.

The Arkansas Academy of Family Physicians held a meeting on Tuesday with Robert Rakel of Iowa City, Iowa, as guest speaker. The program was approved for two prescribed hours of credit.

The Arkansas Orthopaedic Society met on Tuesday, April 26th, for a luncheon and business meeting.

The Arkansas Society of Pathologists met on

Tuesday, April 26, with Sanford I. Roth of the University of Arkansas College of Medicine as guest speaker.

The Arkansas Academy of Pediatrics met on Tuesday, April 26th, with Jon A. Vanderhoof of Nebraska as speaker.

The Arkansas Society of Anesthesiologists held a Tuesday luncheon meeting with John Brunner of the University of Arkansas College of Medicine as speaker.

The Arkansas Chapter of the American College of Obstetricians and Gynecologists met on Tuesday, April 26, with Byron L. Hawks and Robert Arrington of the University of Arkansas College of Medicine presenting a scientific program.

The Arkansas Psychiatric Society met on Tuesday afternoon for a scientific program presented by John J. Schwab of Louisville.

OTHER ACTIVITIES

PRAYER BREAKFAST

A Prayer Breakfast for all members of the Society and Auxiliary was held on Tuesday morning, April 26, with John McCollough Smith of Little Rock serving as master of ceremonies.

The opening prayer was by James L. Smith of Little Rock. Bruce E. Schratz of North Little Rock and Robert R. Sykes of Nashville read from the Scripture. The principal speaker was John J. Schwab of the Department of Psychiatry of the University of Louisville School of Medicine, Louisville, Kentucky. The closing prayer was by Jerome S. Levy of Little Rock.

The breakfast was sponsored by the Committee on Medicine and Religion of the Society, C. R. Ellis, chairman.

MEMORIAL SERVICE

Immediately following the prayer breakfast, a joint Society-Auxiliary Memorial Service was held with Society President A. S. Koenig, Jr., presiding.

Dr. Koenig read the following listing of names of the Society who have died since the previous annual meeting:

Benjamin F. Banister, Jr., Conway
Rupert M. Blakely, Little Rock
Hoyt L. Choate, Little Rock
Henry A. Crane, Jr., Monticello
Marvin L. Dalton, Brinkley
A. R. DeJanis, North Little Rock
Hal R. Dildy, Little Rock
William C. Dodd, Bald Knob
William A. Goodrum, Hot Springs
Alfred H. Hathcock, Batesville
D. L. Owens, Harrison
Richard C. Petty, Star City
William L. Shippey, Fort Smith

Paul Sizemore, Magnolia

George W. Smiley, Lake Village

William O. Young, Little Rock

Mrs. Carl Wilson, president of the Arkansas Medical Society Auxiliary, presented the following names of deceased members of the Auxiliary:

Mrs. J. D. Altman, Jonesboro

Mrs. K. W. Cosgrove, Sr., Little Rock

Mrs. W. J. Hunt, Shreveport, La.

Mrs. Jack W. Kennedy, Arkadelphia

Mrs. Howard U. Monroe, Mountain View

Mrs. Everett C. Moulton, Sr., Fort Smith

Mrs. H. H. McAdams, Sr., Jonesboro

Mrs. John E. Peters, Little Rock

Mrs. John Rowland, Hot Springs

Mrs. Bill Dave Stewart, Little Rock

Mrs. D. B. Stough, Hot Springs

Mrs. W. W. Verser, Harrisburg

Mrs. E. H. Wilkes, Sr., Little Rock

Mrs. Finis Q. Wyatt, Batesville

Benediction was by Jerry Warmath, Th.D., Pastor of the Pulaski Heights Baptist Church.

CARDIOPULMONARY RESUSCITATION COURSE

A cardiopulmonary resuscitation course was conducted on Monday and Tuesday of the convention by Noel Lawson of Little Rock.

COUNCIL RECEPTION

A reception hosted by the Council on Sunday evening honored Dr. and Mrs. G. Thomas Jansen of Little Rock. Dr. Jansen is current president of the Southern Medical Association. Members of the executive committee and their wives joined Dr. and Mrs. Jansen in the receiving line.

BLUE CROSS-BLUE SHIELD PARTY

Arkansas Blue Cross-Blue Shield hosted a lavish cocktail buffet on Monday evening in



George F. Wynne expressed thanks to the House of Delegates after his election to the position of president-elect of the Society, April 27th, 1977.



Speaker Amail Chudy presides at opening session of the House of Delegates on Sunday, April 24th. Asa Crow, Vice Speaker, is to the right of the podium.



Past presidents of the Society gathered for a breakfast on Wednesday morning of the convention. Presented were (seated, left to right) C. R. Ellis, Ben N. Saltzman, A. S. Koenig, Jr., (standing, left to right) Jack Kennedy, Ross Fowler, John P. Wood, H. W. Thomas, Robert Watson, T. Duel Brown, Joe Verser, and Joe Norton.

the Camelot. The buffet table was beautifully decorated with the Blue Cross-Blue Shield trademarks carved in blue ice. Members of the staff of Blue Cross-Blue Shield were gracious hosts and hostesses.

The Society expressed appreciation to George Mitchell, president of Blue Cross-Blue Shield, and others responsible for the very pleasant evening which they sponsored.

FIFTY YEAR CLUB

Members of the Fifty Year Club of the Arkansas Medical Society were honored at a breakfast meeting on Wednesday.

John H. Burge of Lake Village and M. C. Hawkins, Jr., of Searcy were welcomed as new members of the club and presented membership pins. A membership pin was also forwarded to Virgil Payne of Pine Bluff who was unable to be present.

Other members of the club present included Eva Dodge, secretary; C. W. Jones, Sr., president; Jerome S. Levy, J. W. Morris, and R. H. Whitehead.

Members presented reminiscences of the most dramatic situations in their early days of practice.

Dr. Dodge was re-elected secretary of the club and Dr. Jones was re-elected president.

PAST PRESIDENTS' BREAKFAST

The former presidents of the Arkansas Medical Society were honored at a breakfast Wednesday morning. Past presidents attending were J. W. Kennedy, Ross Fowler, John P. Wood, H. W. Thomas, Robert Watson, T. Duel Brown, Joe Verser, Joe Norton, C. R. Ellis, Ben N. Saltzman, and A. S. Koenig, Jr.

INAUGURAL BANQUET

President A. S. Koenig served as master of ceremonies for the President's Banquet on Tuesday evening of the Convention. Invocation was by Ken Lilly.

Seated at the head table for the banquet were President Koenig and Mrs. Koenig, Chairman of the Council John P. Burge and Mrs. Burge, Secretary Elvin Shuffield and Mrs. Shuffield, Convention Chairman Ken Lilly and Mrs. Lilly, President-elect W. Payton Kolb and Mrs. Kolb, and Mr. and Mrs. Paul Schaefer.

President Koenig introduced special guests present:

Mr. Mack Harbour, President of the Arkansas Hospital Association.

Mr. Roger Busfield, Executive Director of the Arkansas Hospital Association.

George K. Mitchell, President and Chief Executive Officer of Blue Cross-Blue Shield, and Mrs. Mitchell.

Nan Jones, President of the Arkansas State Society, American Association of Medical Assistants.

Mrs. Kemal Kutait, President of the Arkansas Medical Society Auxiliary.

Mrs. Carl Wilson, Immediate Past President of the State Medical Auxiliary.

Mrs. Walter Mizell, President-elect of the Arkansas Medical Society Auxiliary.

G. Thomas Jansen, President of the Southern Medical Association.

Mr. John Gilbreath, Executive Director of the Baptist Medical Center System.

President Koenig expressed appreciation to Ken Lilly for his excellent work as convention chairman. He also introduced Executive Vice President C. C. Long and members of the headquarters staff and expressed appreciation to them for their work.

President Koenig introduced an ensemble from the Fort Smith Northside High School Mixed Chorus, an award-winning group under the leadership of Edna Earle Massey, Choral Director. The ensemble presented an outstanding musical program. One of the members of the ensemble was the son of the convention chairman, Ken Lilly. Ken entertained the group with a vocal solo, trumpet solo, and as a member of a barber-shop quartet. Following the program, Miss Massey was presented with a plaque of appreciation which was signed by three Fort Smith physicians — President Koenig, Convention Chairman Lilly and Councilor Kemal Kutait. Mrs. Koenig presented to Miss Massey a bouquet of red roses as an expression of appreciation and esteem. Miss Massey is retiring this year after many years as choral director at Fort Smith.

Dr. Koenig then administered the oath of office of President of the Arkansas Medical Society to W. Payton Kolb of Little Rock and pre-



Officers of the Arkansas Medical Society Auxiliary for 1977-78 are Mrs. Kemal Kutait, Fort Smith, President (seated, right), Mrs. Walter Mizell of Benton, president-elect (seated, left), Northeast Vice President Mrs. Larry Lawson of Paragould; Treasurer Mrs. J. W. Downs of Little Rock; Southwest Vice President Mrs. A. E. Andrews of Texarkana; Recording Secretary Mrs. Joe Lyford of Russellville, and Southeast Vice President Mrs. Ray Jouett of Little Rock.

sented to Dr. Kolb a gavel as a symbol of the office of president.

Dr. Koenig received from Dr. Kolb a plaque in recognition of his service to the medical profession and the citizens of the State during his presidency.

Dr. Kolb introduced members of his family and special guests present to witness his inauguration as president of the Society. They included:

Mrs. W. S. Sparks, his mother-in-law

Mr. and Mrs. Ned Clay, Mrs. Kolb's sister and her husband

Mrs. Salli Dees, his daughter, and her husband, Michael

Dr. Frank Westerfield, his associate

Dr. and Mrs. Walter Mizell (Mrs. Mizell is a relative)

Dr. and Mrs. John Spencer (Dr. Spencer was Dr. Kolb's college roommate)

The banquet program concluded with the following address by Dr. Kolb:

INAUGURAL ADDRESS

W. Payton Kolb, President

1977-1978

Arkansas Medical Society

"You've gotta get rid of the cribs."

Dr. Paddington, deeply immersed in his thoughts about plans for the new pediatric wing in the University's tertiary care facility, wasn't paying attention to Busby, the hospital administrator. Busby, looking harassed as usual, sensed that Dr. Paddington, preoccupied, wasn't listening. "We've received a memo from the Attorney General's office. It says that starting February 1st we can no longer use cribs."

"What the hell are you talking about, Busby?" It had been a difficult period for Paddington . . . the new residents weren't working out well . . . too many damned committee and faculty meetings.

"I'm sorry, Dr. Paddington, but there's been a new state supreme court ruling that says that

kids must be allowed more freedom when they're in the hospital . . . something about 'least restrictive environment' . . . children being kept in confined quarters for hours on end . . . something about 'prison inmates in solitary confinement possessing more rights and civil liberties than kids on pediatric wards'."

Dr. Paddington sat down, incredulously beginning to comprehend what Busby was telling him.

"You mean . . . infants . . . no cribs?"

"Yep . . . there apparently was no age distinction made in the decision . . . pediatricians, nurses, and hospital administrators are up in arms throughout the entire state."

Busby felt relieved that Paddington was at least paying attention to him.

It had begun innocently enough. "Little Joey versus Thatcher," a suit against the administrator of a hospital by parents who felt that their hospitalized child had spent too much time in his crib and not enough at recreational or play activities. During the trial, Thatcher admitted that his large county hospital did not have the necessary funds to hire enough "play ladies" to supervise recreational activities.

Perhaps the children had spent more time in their cribs than they should. It wasn't long before civil libertarians, sensing an overriding constitutional issue, began to seriously question the time-honored practice of using cribs in hospitals. Then, finally, the test case . . . Little Joey.

State legislators, eager to get on the civil libertarian bandwagon, passed laws against the use of cribs and play pens in one's private home, in hospitals and institutions and just about everywhere. The use of cribs or play pens constituted a new form of child abuse and parents rumored to still secretively use cribs for their children were routinely investigated by state welfare agencies and many were prosecuted.

Despite the strong and active lobbying against the law by the manufacturers of cribs and play pens and the Academy of Pediatrics, the laws were passed, appeals were lost, and attempts to repeal the legislation failed.

The nation witnessed an epidemic of accidents, occurring primarily in the one- to four-year-old age group which the civil libertarians attributed to improved statistical reporting of accidents. Increasing number of admissions to

psychiatric units of young mothers and fathers gave rise to a new psychiatric syndrome — "Cribless Anxiety Neurosis."

This was first described by Auchinschloss and Auchinschloss, a psychiatrist couple with four children, all younger than six years of age.

The article, written by the couple while recuperating from the syndrome at Happy Moor, a local private psychiatric facility, summarized the syndrome as follows:

"Cribless Anxiety Neurosis" is a new syndrome characterized by sheer exhaustion, hyper-alertness, and paranoid vigilance unparalleled except by soldiers in front line combat areas. The syndrome is further characterized by auditory and/or visual hallucinatory experiences in which a child's crib is seen, or the rocking of which is heard by the patient. On experiencing the hallucinations, a period of euphoria and ecstasy is noted, followed by total emotional collapse when reality intrudes upon the hallucinatory episode.

Epidemiologists, in explaining the surge of accidents afflicting the pediatric age population, indicated that "Although difficult to establish an exact one-to-one relationship, the banning of cribs and play pens seems to be involved somewhere in the causal chain . . .". The National Institute of Health awarded several large grants to Johns Hopkins, Columbia, and UCLA to jointly and cooperatively study the problem.

In a series of double blind studies, children who spent time in cribs and play pens indeed experienced fewer accidents and "Cribless Anxiety Neurosis" was virtually absent in the parents of the children who used cribs.

The researchers suggested that on the basis of their investigations, there did *seem* to be a relationship between accident frequency and the banning of the cribs. They, however, urged caution against over-interpreting their preliminary findings and recommended more elaborate studies.

After many years of increasingly escalating accident and "Cribless Anxiety Neurosis" statistics, the conclusions of very sophisticated research projects substantiated the early work of investigators in the field.

Ironically, it was not the weight of scientific opinion and findings that brought about the ultimate repeal of anti-crib legislation. The fiery

young zealots who comprised the vanguard of the anti-crib movement had by this time themselves become parents.

Busby and Paddington personally supervised the return of the cribs and play pens to the pediatric unit. Claspig Dr. Paddington around his shoulders, Busby offered: "Let's go over to the cafeteria and I'll buy you a cup of coffee, Doc."

"Busby, I've got a better idea." And in the privacy of Dr. Paddington's office, they silently toasted each other with champagne from a forgotten bottle acquired to celebrate some forgotten past victory.

"If you live long enough, Busby . . . if you live long enough."

This delightful satire was written and presented to the American Psychiatric Association Institute on Government Relations last month (March 21, 1977) by Dr. Harvey J. Shwed of the Psychiatric Institute of Saint Michael's Medical Center, Newark, New Jersey. I am grateful to Dr. Shwed for his permission to bring it to you.

The clever way in which Dr. Shwed presents the ridiculous methods used to reach decisions, rules and regulations is amusing but the amusement is somewhat "Pagliaccian" in nature when we must smile with a broken heart over the suffering and pain such methods produce. Although motivation may be noble, without training, experience and non-prejudicial thought process, it can spell disaster. Dr. Shwed is kind in letting the story have a happy ending. Unfortunately this is usually not the case in reality.

Occasionally we see a little glimmer of hope when someone on Capitol Hill indicates an awareness of these problems. Unfortunately, the light remains dim.

We are approaching the end of an excellent busy Convention. We have re-emphasized knowledge in all fields pertaining to the practice of medicine. We realize with regret the need to spend as much time as we do on the forces that interfere with the efficient practice of the Art and Science of Medicine. I do not plan to repeat what you have already heard but would like to touch briefly on a few points that may be new to you. The publications from your AMS and AMA are extremely valuable and I not only urge but implore you to read these when they arrive.

I have attended all of the six Institutes on Government Relations of the American Psychiatric Association as well as the last two meetings of the Organization of State Medical Society Presidents and the magnificent National Leadership Conference of the AMA this past January. What has happened this year is the addition of what effect the talk of a balanced budget will have on cost containment, what will be the effect of the reorganization in HEW, and most interesting was the beginning talk on Capitol Hill that probably National Health Insurance will come in increments. They stated one of the major questions would be how to select the order of priorities, i.e.: Catastrophic coverage, or Crisis intervention, or Children, etc.

In all of this I cannot be comfortable when I read an excerpt from a Government report as printed in "Physicians Management" last December which stated, "One advantage of old age is that the elderly tend to live long lives." In dealing with many of our detractors I am reminded of the recent cartoon in Medical Tribune. In the cartoon a student is confronting his teacher with this statement, "Columbus didn't know where he was, Newton was sleeping when he hit on gravity, and Einstein never combed his hair. I think there is a lesson in this for all of us." Unfortunately, I am afraid the lesson, which is usually missed, should be that everyone who is lost is not an expert navigator, everyone who is asleep is not proficient in physics and everyone who doesn't comb his hair is not a genius in mathematics.

It is impossible to really decide the areas that should be covered at a time like this. This is a festive occasion and yet you want to know something about me that is serious. With your indulgence I will touch on some matters that have created some rather strong emotions within me recently.

Numerous good studies have proven that a pleuristic system offers the best approach to solving problems in the delivery of care. In several proposed NHI bills benefits are increased if the patient will seek his care in a Group or HMO. With absolutely no criticism of these types of delivery systems the act of offering more money to a patient if he will give up his right of choice and go to a "provider" recommended by the third party payor gets close to being

bribery. I hesitated a long time before using the word and went to the dictionary for clarification. I am making no accusations and the motive may be well intentioned. I do not believe, however, this constitutes high quality care.

I am disturbed when I hear comments that American medical care is an ungodly mess and the entire delivery system must be changed. I am more disturbed when some of this comes from members of the medical profession. I remember as a teenager lying in the hospital at Hope with malaria while down the hall lay a friend with chronic osteomyelitis who missed many months of school. As an intern I worked night and day on a contagion ward during a polio epidemic. I want these people to show me the empty buildings of the tuberculosis sanatoriums and the old "snake-pit asylums" and tell me that American medicine is a mess. Certainly there is still death and disease but when American medicine has accomplished what it has we had better build on it and not destroy it to embark on a completely untried system.

I am enjoying Continued Medical Education. It is a little tedious to keep records but at the same time I have found out we have been doing more than we thought we had, we are learning new developments and we are finding assurance that what we are doing has been up to date. The irony is that those who have been critical and demanding that we get into CME are frequently those who are so vigorous in wanting to license people to practice medicine who are not physicians and certainly have less education and experience than we did in the first place.

Due to my father's love and involvement with organized medicine my experience goes further back than my own medical career. I recall the many years of struggle by our Society and our Medical Board to raise the quality of medical care and rid the State of "quackery." Arkansas has gone from harbouring some of the worst "quacks" in the medical field to one of the cleanest states in the country. I remember my father as Superintendent of the State Hospital during World War II working with the Dean of the University to use the State Hospital Infirmary beds to help the school maintain its accreditation. I recall how we worked and fought for the legislation to develop the Medical Center we have now. All of this to increase the quality and the number of physicians in the State. It is with

almost unbelief that we read and hear the accusations that the Board is self-serving and working to keep down competition. The accusations cannot stand up to the facts. In fact, the attitude created by these repeated accusations can only hurt the patient far more than it can hurt us.

There are many other areas that can be explored but we are familiar with them and what needs to be done. As said earlier it is important that we use the material that comes to us to keep up with all developments in medicine. We must then translate this knowledge into the necessary actions for the protection of the health and the rights of our patients first and then the rights we have as individuals.

I want to work with you particularly to enlarge and make more effective our organizations, the societies, the auxiliaries and PAC's. This is the best way to help our patients by communicating scientific knowledge and by fighting to protect his right to quality care.

As far as I can determine I am the first full-fledged Psychiatrist to be honored in this way by this Society. I appreciate this and pledge to work to enlarge and strengthen our organization and not to "shrink" it. Now you know the truth. One of my worst vices happens to be terrible puns. I'll try to do better.

Time is running out and I do not want to be the object of the first recall election in the history of this Society. I appreciate and accept this honor you have given me and pledge to work with you to do everything possible to continue to provide quality care for the patient and do everything possible to protect the patient from encroachment that interferes with his or her receiving that care.

ATTENDANCE

101st Annual Session

Physicians	461
Medical Students	14
Medical Assistants, Nurses, and Technicians	9
Scientific Exhibitors	39
Commercial Exhibitors	130
Auxiliary	19
Miscellaneous Guests	34
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	706
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Auxiliary Registration	121

COMMITTEES — ARKANSAS MEDICAL SOCIETY — 1977-78

	Term Expires		Term Expires
COMMITTEE ON CANCER CONTROL		SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE	
Gilbert D. Jay, III, 200 South Rhodes, West Memphis 72301	1978	Virgil Hayden, 1706 West 42nd, Pine Bluff 71603	1978
Herbert B. Wren, P. O. Box 1109, Texarkana 75503	1979	Charles H. Floyd, 617 South 16th Street, Fort Smith 72901 — <i>CHAIRMAN</i>	1979
Charles R. Henry, 500 South University, Little Rock 72205 — <i>CHAIRMAN</i>	1979	John W. Trieschmann, 236 Woodbine, Hot Springs 71901	1980
David Barclay, 4301 West Markham, Little Rock 72201	1980	D. B. Allen, 500 South University, Little Rock 72205	1980
John Broadwater, 1500 Dodson, Fort Smith 72901	1980		
COMMITTEE ON MEDICAL LEGISLATION		SUB-COMMITTEE ON TUBERCULOSIS	
Elvin Shuffield, 110 Doctors Park Building, Little Rock 72205 — <i>CHAIRMAN</i>	1978	Jim Citty, 2900 Hawkins Drive, Searcy 72143	1978
Joe Verser, P. O. Box 106, Harrisburg 72432	1978	Lawrence C. Price, P. O. Box 3006, Fort Smith 72913	1978
George Warren, P. O. Box W, Smackover 71762	1978	L. J. Pat Bell, 626 Poplar, Helena 72342	1979
A. Samuel Koenig, III, 922 Lexington, Fort Smith 72901	1979	Jerry Stewart, Waldron Road at Ellsworth, Fort Smith 72903	1979
Robert Watson, 750 Medical Towers Building, Little Rock 72205	1979	John C. Schultz, 10001 Lile Drive, Little Rock 72205	1980
W. P. Phillips, P. O. Box 3507, Fort Smith 72913	1979	Donald Miller, 1515 West 42nd, Pine Bluff 71603 — <i>CHAIRMAN</i>	1980
Morris M. Henry, P. O. Box 1767, Fayetteville 72701	1980		
A. E. Andrews, Jr., P. O. Box 689, Texarkana 75503	1980	COMMITTEE ON AGING	
Donald L. Toon, 310 North Alabama, Crossett 71635	1980	Woodbridge Morris, 5326 West Markham, #13, Little Rock 72205	1978
		Gordon P. Oates, 701 West Markham, Little Rock 72201 — <i>CHAIRMAN</i>	1979
		Bill D. Stewart, 415 North University, Little Rock 72205	1979
SUB-COMMITTEE ON NATIONAL LEGISLATION		Thomas E. Burrow, 903 West Grand, Hot Springs 71901	1979
Jerry Mann, 416 Main, Arkadelphia 71923	1978	John F. Guenther, 126 West Sixth, Mountain Home 72653	1980
James M. Kolb, Jr., 305 Skyline Drive, Russellville 72801	1978	John A. Baldrige, 300 East Roosevelt Road, Little Rock 72206	1980
William S. Orr, Jr., St. Vincent Infirmary, Little Rock 72201 — <i>CHAIRMAN</i>	1979		
Morris M. Henry, P. O. Box 1767, Fayetteville 72701	1979	SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH	
W. Payton Kolb, 230 Medical Towers Building Little Rock 72205	1980	Francis Buchanan, 500 South University, Little Rock 72205	1978
Dale Alford, 5700 West Markham, Little Rock 72205	1980	Coy C. Kaylor, P. O. Drawer 1608, Fayetteville 72701	1979
		James Sanders, 505 East Matthews, Jonesboro 72401	1979
COMMITTEE ON PUBLIC HEALTH		Ralph Ingram, 1120 Lexington, Fort Smith 72901	1979
Wade Burnside, 207 East Dickson, Fayetteville 72701	1978	John McCollough Smith, 4000 Woodlawn, Little Rock 72205	1980
Wilbur G. Lawson, 207 East Dickson, Fayetteville 72701	1978	Francis M. Henderson, 1515 West 42nd, Pine Bluff 71603	1980
Ben N. Saltzman, 4301 West Markham, Little Rock 72201 — <i>CHAIRMAN</i>	1979		
Bryant S. Swindoll, 4815 West Markham, Little Rock 72205	1979	SUB-COMMITTEE ON INDUSTRIAL HEALTH	
Edgar J. Easley, 4815 West Markham, Little Rock 72205	1980	I. Leighton Millard, P. O. Box 5270, Little Rock 72205	1978
Milton D. Deneke, P. O. Box 607, West Memphis 72301	1980	Howard Schwander, 9600 West 12th, Little Rock 72205	1978
John W. Vinzant, 22 East Spring, Fayetteville 72701	1980	Paul G. Henley, 700 West Faulkner, El Dorado 71730	1979

PROCEEDINGS

	Term Expires		Term Expires
Robert H. Janes, Jr., 1500 Dodson, Fort Smith 72901 — <i>CHAIRMAN</i>	1979	John P. Wood, 907 Mena, Mena 71953 — <i>CHAIRMAN</i>	1979
Noel Ferguson, P. O. Box 1276, Harrison 72601	1980	H. King Wade, Jr., 231 Central, Hot Springs 71901	1979
Howard M. Armstrong, 340 Doctors Park Bldg., Little Rock 72205	1980	J. Mayne Parker, 500 South University, Little Rock 72205	1980
COMMITTEE ON MENTAL HEALTH		Robert Miller, 616 Elm, Helena 72342	1980
Robert G. Carnahan, 4313 West Markham, Little Rock 72205	1978	Jean Gladden, P. O. Box 1118, Harrison 72601	1980
W. Payton Kolb, 230 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	1978	COMMITTEE ON MEDICAL EDUCATION	
William Joseph James, 2500 Rike Drive, Pine Bluff 71601	1978	William G. Lockhart, 1500 Dodson, Fort Smith 72901, Dist. 10	1978
Joe H. Dorzab, 924 Adelaide, Fort Smith 72903	1979	Robert D. Dickins, Jr., 750 Medical Towers, Little Rock 72205, Dist. 8	1978
Albert Clowney, 312 Thompson, El Dorado 71730	1979	C. Lynn Harris, P. O. Box 10, Hope 71801, Dist. 6	1978
Frank M. James, 2920 McClellan Drive, Jonesboro 72401	1979	Wayne G. Elliott, 443 West Oak, El Dorado 71730, Dist. 5	1979
Henry Hearnberger, 4313 West Markham, Little Rock 72205	1980	Lee Parker, Jr., 241 West Spring, Fayetteville 72701, Dist. 9	1979
John D. Wise, 1219 South Main, Malvern 72104	1980	James W. Sanders, 505 East Matthews, Jonesboro 72401, Dist. 1	1979
IMMUNIZATION SUB-COMMITTEE		Bernard Capes, P. O. Box 2398, West Helena 72390, Dist. 3	1979
Horace L. Green, 1420 West 42nd, Pine Bluff 71603	1978	Raymond V. Biondo, P. O. Box 921, North Little Rock 72115, Dist. 8 — <i>CHAIRMAN</i>	1980
Mahlon O. Maris, P. O. Box 759, Harrison 72601	1978	Robert H. White, 1004 Dyer, Malvern 72104, Dist. 7	1980
Betty A. Lowe, 804 Wolfe, Little Rock 72201	1978	W. M. Wells, Fourth and Spring, Heber Springs 72543, Dist. 2	1980
Roger B. Bost, 4301 West Markham, Little Rock 72201	1979	Neil E. Crow, P. O. Box 1612, Fort Smith 72902, Dist. 4	1980
Charles E. Kemp, 505 East Matthews, Jonesboro 72401 — <i>CHAIRMAN</i>	1979	COMMITTEE ON HOSPITALS	
Deane G. Baldwin, 500 South University, Little Rock 72205	1980	Paul N. Means, 3 Hearthside Drive, Little Rock 72207	1978
SUB-COMMITTEE ON TRAFFIC SAFETY		Peter J. Irwin, 1500 Dodson, Fort Smith 72901	1978
James G. Stuckey, Jr., 500 South University, Little Rock 72205	1978	Art B. Martin, 1500 Dodson, Fort Smith 72901 — <i>CHAIRMAN</i>	1979
H. Austin Grimes, P. O. Box 5270, Little Rock 72205	1978	George K. Mitchell, P. O. Box 2181, Little Rock 72203	1979
Donald L. Duncan, P. O. Box 778, Texarkana 75501	1978	Harold D. Purdy, 6924 Geyer Springs Road, Little Rock 72209	1980
Louise M. Henry, P. O. Box 1267, Fayetteville 72701	1978	Raymond A. Irwin, Jr., 1421 Cherry, Pine Bluff 71601	1980
Carl L. Williams, 522 South 16th, Fort Smith 72901 — <i>CHAIRMAN</i>	1979	COMMITTEE ON PUBLIC RELATIONS	
Guy U. Robinson, 207 South Elm, Dumas 71639	1980	A. C. Bradford, Waldron Road at Ellsworth, Fort Smith 72903	1978
SUB-COMMITTEE ON LIAISON WITH VOCATIONAL REHABILITATION		W. Ray Jouett, 750 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	1978
Robert Watson, 750 Medical Towers Building, Little Rock 72205	1978	G. Thomas Jansen, 500 South University, Little Rock 72205	1979
Thomas M. Durham, Jr., 505 West Grand, Hot Springs 71901	1978	Milton Dencke, P. O. Box 607, West Memphis 72301	1979
		Jimmie J. Magie, P. O. Box 1284, Conway 72032	1980
		Nathan L. Poff, 401 West Searcy, Heber Springs 72543	1980

PROCEEDINGS

	Term Expires		Term Expires
SUB-COMMITTEE ON LIAISON WITH THE AUXILIARY		Charles F. Wilkins, 3105 West Main Place, Russellville 72801	1980
Walter S. Mizell, Benton Services Center, Benton 72015	1980	David D. Fried, Northside Shopping Center, Mena 71953	1980
Kemal Kutait, 1120 Lexington, Fort Smith 72901 — <i>CHAIRMAN</i>	1980	COMMITTEE ON MEDICINE AND RELIGION	
George F. Wynne, 113 West Cypress, Warren 71671	1980	C. Randolph Ellis, 1004 South Main, Malvern 72104 — <i>CHAIRMAN</i>	1978
George K. Mitchell, P. O. Box 2181, Little Rock 72203	1980	Kenneth Lilly, 1120 Lexington, Fort Smith 72901	1978
SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE		John W. Trieschmann, 236 Woodbine, Hot Springs 71901	1979
Alvin Strauss, Jr., 1026 Donaghey Building, Little Rock 72201	1978	Robert R. Sykes, P. O. Box 549, Nashville 71852	1979
Hugh R. Edwards, 601 West Woodruff, Searcy 72143	1979	Fred O. Henker, 1301 West Markham, Little Rock 72201	1980
James T. Blackmon, 1008 Pine, Arkadelphia 71923 — <i>CHAIRMAN</i>	1980	Orman W. Simmons, 9600 West 12th, Little Rock 72205	1980
Robert M. Stainton, 500 South University, Little Rock 72205	1980	COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION	
Robert L. Kerr, P. O. Box 432, Mountain Home 72653	1980	Asa Crow, #1 Medical Drive, Paragould 72450	1978
L. Gordon Holt, 5326 West Markham, Little Rock 72205	1980	Joseph Robinette, 1722 Doctors Drive, Pine Bluff 71603	1978
ADVISORY COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY		G. Thomas Jansen, 500 South University, Little Rock 72205	1978
Frank DeSandre, 606 South Young, Springdale 72764	1978	Gilbert S. Campbell, 4301 West Markham, Little Rock 72201	1979
William Robert Nixon, Jr., 709 West Sixth, Pine Bluff 71601	1978	Kenneth Lilly, 1120 Lexington, Fort Smith 72901	1979
Annette Landrum, P. O. Box 1684, Fort Smith 72902	1979	W. F. Turner, 1500 Dodson, Fort Smith 72901	1979
T. E. Townsend, 1420 West 43rd, Pine Bluff 71601 — <i>CHAIRMAN</i>	1980	R. W. Ross, 1120 Lexington, Fort Smith 72901	1980
C. W. Jackson, Box C, Judsonia 72081	1980	James A. Wellons, Jr., 890 Medical Towers Bldg., Little Rock 72205 — <i>CHAIRMAN</i>	1980
Jerry Holton, 500 So. University, Little Rock 72205	1980	George H. Collier, Jr., 130 South 14th, Paragould 72450	1980
COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS		Charles A. Taylor, P. O. Box 2116, Batesville 72501	1980
Chalmers S. Pool, VA Hospital, North Little Rock 72114	1980	COUNCIL COMMITTEES	
James M. Kolb, Jr., 305 Skyline Drive, Russellville 72801	1980	PHYSICIAN-NURSE JOINT PRACTICE COMMITTEE	
Warren Murry, 1719 North College, Fayetteville 72701 — <i>CHAIRMAN</i>	1980	Robert Watson, 750 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	
COMMITTEE ON INSURANCE		A. T. Gillespie, 500 South University, Little Rock 72205	
J. Harry Hayes, Jr., 500 South University, Little Rock 72205	1978	Charles E. Tommex, 412 North Washington, El Dorado 71730	
Banks Blackwell, 1400 West 43rd, Pine Bluff 71603 — <i>CHAIRMAN</i>	1978	Jerry Holton, 500 South University, Little Rock 72205	
Travis Crews, 500 South University, Suite 815, Little Rock 72205	1979	Guy R. Farris, 6213 Lee Avenue, Little Rock 72205	
James R. Weber, P. O. Box 188, Jacksonville 72076	1979	COMMITTEE ON CONSTITUTIONAL REVISION	
		A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901 — <i>CHAIRMAN</i>	
		William S. Orr, St. Vincent Infirmary, Little Rock 72201	

PROCEEDINGS

Nathan Poff, 401 West Searcy,
Heber Springs 72543
Warren Murry, 1749 North College,
Fayetteville 72701

BUDGET COMMITTEE

H. W. Thomas, P. O. Box 250,
Dermott 71638 — *CHAIRMAN*
K. R. Duzan, 443 West Oak,
El Dorado 71730

LIAISON COMMITTEE WITH STATE WELFARE DEPARTMENT (Composed of Executive Committee)

COMMITTEE ON PHARMACY

Kelsy Caplinger, P. O. Box 5675,
Little Rock 72205 — *CHAIRMAN*
Boyce W. West, P. O. Box 220,
Clarksville 72830

MEDICAL SCHOOL COMMITTEE

Asa A. Crow, #1 Medical Drive,
Paragould 72450 — *CHAIRMAN*
Kemal Kutait, 1120 Lexington,
Fort Smith 72901
Boyce West, P. O. Box 220,
Clarksville 72830

James L. Gardner, 125 Greenwood,
Hot Springs 71901
Max G. Cheney, 353 East 8th.,
Mountain Home 72653

PRIVATE INSURANCE REVIEW COMMITTEE

Rhys Williams, P. O. Box 1118,
Harrison 72601
Austin Grimes, P. O. Box 5270,
Little Rock 72205 — *CHAIRMAN*
A. J. Thompson, 500 So. University,
Little Rock 72205
Kemal Kutait, 1120 Lexington,
Fort Smith 72901
Raymond Irwin, 1421 Cherry,
Pine Bluff 71601

MEDICAL UNDERUTILIZATION COMMITTEE

Art Martin, 1500 Dodson,
Fort Smith 72901 — *CHAIRMAN*
Milton Deneke, P. O. Box 607,
West Memphis 72301
Joseph L. Rosenzweig, 106 Valley View,
Hot Springs 71901
James Mashburn, 207 East Dickson,
Fayetteville 72701
Thomas Honeycutt, 4124 West 11th,
Little Rock 72204



MEDICAL SERVICES REVIEW COMMITTEE

Term Expires	Committee Members (Name and Address)	Specialty Represented	Term Expires	Committee Members (Name and Address)	Specialty Represented
1978	C. Lynn Harris, P. O. Box 10, Hope 71801	Fam. Pr.	1978	W. P. Phillips, P. O. Box 3507, Fort Smith 72901	Ob-Gyn
1979	Kenneth E. Lilly, 1120 Lexington, Fort Smith 72901	Fam. Pr.	1979	Robert Watson, 750 Medical Towers Bldg., Little Rock 72205	Neurosurgery
1979	Bruce E. Schratz, 1801 Maple, North Little Rock 72114	Fam. Pr.	1979	W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205	Psychiatry
1978	E. Clinton Texter, 4301 West Markham, Little Rock 72201	Int. Med.	1978	Robert Glenn, 516 Pershing, North Little Rock 72114	Pediatrics
1979	Van Smith, P. O. Box 1077, Harrison 72601	Int. Med.	1980	John E. Bell, 1400 West Pleasure, Searcy 72143	Radiology
1978	James R. Walt, 500 South University, Little Rock 72205	Surgery	1978	A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901	Pathology
1980	J. Warren Murry, 1749 North College, Fayetteville 72701	Surgery	1978	Charles McKenzie, 802 North University, Little Rock 72205	Orthopedics
1979	Raymond A. Irwin, Jr., 1421 Cherry, Pine Bluff 71601	Surgery	1979	R. Teryl Brooks, Jr., 1604 West 42nd Ave., Pine Bluff 71601	Urology
1980	Bill F. Hefley, P. O. Box 5675, Little Rock 72205	Allergy	—	Charles F. Wilkins, Jr., 3105 W. Main Place, Russellville 72801	(Chairman)
1979	Wayne B. Glenn, 500 South University, Little Rock 72205	Anes.	—	W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205	(President)
1980	Carl J. Raque, 500 South University, Little Rock 72205	Derm.	—	George F. Wynne, 113 West Cypress, Warren 71671	(President-elect)
1980	Joe H. Lyford, P. O. Box 1107, Russellville 72801	Oph.	—	Elvin Shuffield, Doctors Park, 9600 West 12th, Little Rock 72205	(Secretary)
1980	Harry L. Rounsaville, 500 South University, Little Rock 72205	Oto.	—	John P. Burge, Lake Village Clinic, Lake Village 71653	(Council Chairman)

Sub-Committee of Sub-Specialties

(Representative on call to meet with Committee
as needed when claims in specialty field
are considered)

Sub-Committee Representative	Sub-Specialty Represented
Carl L. Williams, 522 South 16th, Fort Smith 72901	Thoracic Surgery
T. J. Smith, 409 North University, Little Rock 72205	Gastroenterology

Sub-Committee Representative

Thomas H. Allen, 113 North University,
Little Rock 72205

Sub-Specialty Represented

Plastic Surgery

John C. Schultz, 10001 Lile Drive,
Little Rock 72205

Pulmonary Diseases

Kelsy Caplinger, III, P. O. Box 5675,
Little Rock 72205

Pediatric Allergy

W. R. Johnson, Jr., D.D.S., 404 Med. Arts Bldg.,
Hot Springs 71901

Oral Surgery

**PROFESSIONAL RELATIONS COMMITTEE
ARKANSAS MEDICAL SOCIETY**

District	Name of Committee Member	Address
1	F. E. Utley, M.D. B. P. Raney, M.D. T. Murray Ferguson, M.D.	515 North Sixth, Blytheville 72315 103 East Matthews, Jonesboro 72401 200 South Rhodes, West Memphis 72301
2	C. W. Jackson, M.D. Jim Lytle, M.D. Charles F. Wells, M.D.	P. O. Box C, Judsonia 72081 P. O. Box 2116, Batesville 72501 601 South Moose, Morrilton 72110
3	John M. Hestir, M.D. Carl E. Northcutt, M.D. Dwight W. Gray, M.D.	220 West Gibson, DeWitt 72012 Route 1, Box 21-D, Stuttgart 72160 110 West Chestnut, Marianna 72360
4	Howard Harris, M.D. L. R. Turney, M.D. George Roberson, M.D.	307 South Elm, Dumas 71639 101 South Third, McGehee 71654 1708 Doctors Drive, Pine Bluff 71601
5	C. E. Tommey, M.D. L. V. Ozment, M.D. Joe F. Rushton, M.D.	412 North Washington, El Dorado 71730 353 Cash Road, Camden 71701 219 North Washington, Magnolia 71753
6	Donald Duncan, M.D. James G. Martindale, M.D. James Armstrong, M.D.	P. O. Box 778, Texarkana 75501 116 South Main, Hope 71801 P. O. Box 397, Ashdown 71822
7	C. F. Peters, M.D. Robert F. McCrary, M.D. Thomas M. Durham, Jr., M.D.	1420 Potts, Malvern 72104 505 West Grand, Hot Springs 71901 505 West Grand, Hot Springs 71901
8	*Richard M. Logue, M.D. John McCollough Smith, M.D. James Rasch, M.D.	601 North University, Little Rock 72205 1000 Woodlawn, Little Rock 72205 16001 Lile Drive, Little Rock 72205
9	Friedman Sisco, M.D. Charles A. Ledbetter, M.D. James L. Pickens, M.D.	P. O. Box 65, Springdale 72761 Erie & Spring, Harrison 72601 P. O. Box 128, Rogers 72756
10	Samuel Landrum, M.D. David M. Williams, M.D. Boyce West, M.D.	522 South 16th, Fort Smith 72901 809 West Main Place, Russellville 72801 P. O. Box 220, Clarksville 72830

*Chairman

1977 OFFICERS — COUNTY MEDICAL SOCIETIES — ARKANSAS MEDICAL SOCIETY

ARKANSAS	Pres.—Carl E. Northcutt, Route 1, Box 21-D, Stuttgart 72160 Secy.—Carl E. Northcutt, Route 1, Box 21-D, Stuttgart 72160
ASHLEY	Pres.—Robert L. Salb, 113 Pine, Crossett 71635 Secy.—James D. Rankin, Jr., P. O. Box 232, Hamburg 71646
BAXTER	Pres.—James Y. Massey, P. O. Drawer H, Mountain Home 72653 Secy.—Arthur L. Beard, 126 West 6th, Mountain Home 72653
BENTON	Pres.—Richard N. Pearson, 1223 W. Walnut, Rogers 72756 Secy.—Harry M. Harmon, 1105 W. Chestnut, Rogers 72756
BOONE	Pres.—Carlton L. Chambers, Bower at Pine, Harrison 72601 Secy.—Sue R. Chambers, 651 North Spring, Harrison 72601
BRADLEY	Pres.—Merl T. Crow, Jr., 205 E. Church, Warren 71671 Secy.—William C. Whaley, Jr., 205 E. Church, Warren 71671
CHICOT	Pres.—H. W. Thomas, P. O. Box 250, Dermott 71638 Secy.—Major E. Smith, P. O. Box 310, Dermott 71638
CLARK	Pres.—John W. Balay, 416 Main, Arkadelphia 71923 Secy.—George R. Pceples, 305 East Main, Gurdon 71743
CLEBURNE	Pres.—Joe B. Scruggs, Jr., P. O. Box 510, Heber Springs 72543 Secy.—Harral L. Cranford, 4th and Searcy, Heber Springs 72543
COLUMBIA	Pres.—Charles W. Kelley, 1327 N. Washington, Magnolia 71753 Secy.—Robert W. Hunter, Jr., Rt. 4, 2602 Crestview, Magnolia 71753
CONWAY	Pres.— Secy.—Thomas L. Buchanan, 200 S. Moose, Morrilton 72110
CRAIGHEAD-POINSETT	Pres.—William R. Eddington, 505 E. Matthews, Jonesboro 72401 Secy.—Donald R. Guinn, 505 E. Matthews, Jonesboro 72401
CRAWFORD	Pres.—Yale E. Parkhurst, 1103 Chestnut, Van Buren 72956 Secy.—F. E. Shearer, P. O. Box 458, Alma 72921
CRITTENDEN	Pres.—Milton D. Deneke, P. O. Box 607, West Memphis 72301 Secy.—Keith B. Kennedy, P. O. Box 489, West Memphis 72301
CROSS	Pres.—Robert A. Hayes, P. O. Box E, Wynne 72396 Secy.—Vance J. Crain, P. O. Box 158, Wynne 72396
DALLAS	Pres.—Don G. Howard, P. O. Box 506, Fordyce 71742 Secy.—Jack T. Dobson, P. O. Box 816, Fordyce 71742
DESHA	Pres.— Secy.—
DREW	Pres.—Charles E. Hicks, 232 South Main, Monticello 71655 Secy.—Paul A. Wallick, P. O. Box 660, Monticello 71655
FAULKNER	Pres.—James S. Garrison, College and Western Sts., Conway 72032 Secy.—Bob G. Banister, 923 Parkway St., Conway 72032
FRANKLIN	Pres.—Rebecca Ewing, 604 W. Commercial, Ozark 72949 Secy.—David L. Gibbons, P. O. Box 136, Ozark 72949
GARLAND	Pres.—William Y. Springer, 901 W. Grand, Hot Springs 71901 Secy.—John B. Bond, Jr., 101 Whittington, Hot Springs 71901 Asst. Secy.—Miss Mary Payne, 901 W. Grand Ave., Hot Springs 71901
GRANT	Pres.—Curtis B. Clark, 200 S. Rose, Sheridan 72150 Secy.—Clyde D. Paulk, 200 S. Rose, Sheridan 72150
GREENE-CLAY	Pres.—Clark M. Baker, 115 W. Court, Paragould 72450 Secy.—Dwight F. Boggs, 905 W. Kingshighway, Paragould 72450

PROCEEDINGS

HEMPSTEAD	Pres.—Lowell O. Harris, P. O. Box 550, Hope 71801 Secy.—David G. Stevens, 1900 S. Main, Hope 71801
HOT SPRING	Pres.—R. H. White, 1004 Dyer, Malvern 72104 Secy.—C. F. Peters, 1420 Potts, Malvern 72104
HOWARD-PIKE	Pres.—Joe D. King, P. O. Box 549, Nashville 71852 Secy.—Phillip L. White, P. O. Box 538, Murfreesboro 71958
INDEPENDENCE	Pres.—Chaney W. Taylor, P. O. Box 2116, Batesville 72501 Secy.—Nathan E. Strickland, 109 N. 12th, Batesville 72501
JACKSON	Pres.—Jerry M. Frankum, 2nd and Laurel, Newport 72112 Secy.—John D. Ashley, Jr., 2nd and Laurel, Newport 72112
JEFFERSON	Pres.—R. Frank Bryant, 1112 Linden, Pine Bluff 71601 Secy.—J. William Nuckolls, 1720 Doctors Drive, Pine Bluff 71603
JOHNSON	Pres.—Boyce W. West, P. O. Box 220, Clarksville 72830 Secy.—Robert Fraser, P. O. Box 668, Clarksville 72830
LAFAYETTE	Pres.—Willie J. Lee, P. O. Box 276, Stamps 71860 Secy.—Craig E. Ditsch, P. O. Box 276, Stamps 71860
LAWRENCE	Pres.—Ralph F. Joseph, Highway 25 West, Walnut Ridge 72476 Secy.—J. B. Elders, 321 S.W. Third, Walnut Ridge 72476
LEE	Pres.—Dwight W. Gray, 110 W. Chestnut, Marianna 72360 Secy.—E. C. Fields, 77 West Main, Marianna 72360
LINCOLN	Pres.—James W. Freeland, P. O. Box 159, Star City 71667 Secy.—James W. Freeland, P. O. Box 159, Star City 71667
LITTLE RIVER	Pres.—Joseph G. Shelton, Jr., P. O. Box 697, Ashdown 71822 Secy.—James D. Armstrong, P. O. Box 397, Ashdown 71822
LOGAN	Pres.—Charles H. Chalfant, 114 W. Fourth, Booneville 72927 Secy.—James T. Smith, P. O. Box 286, Paris 72855
LONOKE	Pres.—Willie R. Harris, P. O. Box 40, England 72046 Secy.—B. E. Holmes, 305 West Front, Lonoke 72086
MILLER	Pres.—Noel W. Cowan, 300 E. Sixth, Texarkana 75501 Secy.—Arnett D. Smith, Jr., P. O. Box 1409, Texarkana 75501 Exec. Secy.—Mrs. Marilyn Pryor, P. O. Box 1843, Texarkana 75501
MISSISSIPPI	Pres.—James D. Russell, 527 N. Sixth St., Blytheville 72315 Secy.—Eldon Fairley, P. O. Box 68, Osceola 72370
MONROE	Pres.—A. N. Olaimy, P. O. Box 511, Brinkley 72021 Secy.—N. C. David, Jr., 108 W. Ash, Brinkley 72021
NEVADA	Pres.—Richard P. Portis, P. O. Box 442, Prescott 71857 Secy.—Michael C. Young, P. O. Box 442, Prescott 71857
OUACHITA	Pres.—Jerry R. Kendall, 353 Cash Road, Camden 71701 Secy.—L. V. Ozment, 353 Cash Road, Camden 71701
PHILLIPS	Pres.—Hershell B. Oldham, P. O. Box 2538, West Helena 72390 Secy.—William W. Biggs, Helena Hospital, Helena 72342
POLK	Pres.—David P. Hefner, 518 Janssen, Mena 71953 Secy.—Henry N. Rogers, 600 W. 7th Street, Mena 71953
POPE	Pres.—Richard K. Lovell, Sr., P. O. Box 1107, Russellville 72801 Secy.—W. E. King, Jr., 3105 West Main Place, Russellville 72801
PULASKI	Pres.—Frank M. Westerfield, Jr., 230 Medical Towers Bldg., Little Rock 72205 Secy.—Charles W. Logan, 500 South University, Little Rock 72205 Exec. Secy.—Mr. Paul Harris, 311 Doctors Bldg., Little Rock 72205
RANDOLPH	Pres.—Norman K. Smith, 107 VanBibber, Pocahontas 72455 Secy.—Albert L. Baltz, 110 W. Broadway, Pocahontas 72455

PROCEEDINGS

SALINE	Pres.—Jim C. Porter, 910 N. East, Benton 72015 Secy.—David L. Stewart, P. O. Box 399, Benton 72015
SCOTT	Pres.—Harold B. Wright, P. O. Box 249, Waldron 72958 Secy.—Harold B. Wright, P. O. Box 249, Waldron 72958
SEBASTIAN	Pres.—T. A. Feild, 3600 N. "O", Fort Smith 72904 Secy.—Homer G. Ellis, P. O. Box 3507, Fort Smith 72913 Asst. Secy.—Mrs. Betty Stipsky, Waldron Rd. at Ellsworth, Fort Smith 72903
SEVIER	Pres.—Michael L. Buffington, P. O. Box 391, DeQueen 71832 Secy.—Curtis Williams, Highway 70 West, DeQueen 71832 Exec. Secy.—Mr. Jim E. Pearce, Highway 70 West, DeQueen 71832
ST. FRANCIS	Pres.—Herbert H. Hollis, 317 N. Washington, Forrest City 72335 Secy.—David L. Lockhart, P. O. Box 70, Forrest City 72335
UNION	Pres.—Wayne G. Elliott, 443 West Oak, El Dorado 71730 Secy.—John R. Williamson, 318 Thompson, El Dorado 71730
VAN BUREN	Pres.—William C. McBryde, P. O. Box 11, Fairfield Bay 72153 Secy.—John A. Hall, P. O. Box 310, Clinton 72031
WASHINGTON	Pres.—Ed Wheat, 130 N. Spring, Springdale 72764 Secy.—E. Mitchell Singleton, P. O. Box 1343, Fayetteville 72701
WHITE	Pres.—Rex W. Ross, 2900 Hawkins Dr., Searcy 72143 Secy.—Hugh R. Edwards, 601 West Woodruff, Searcy 72143
WOODRUFF	Pres.—James E. Rowe, P. O. Box 387, McCrory 72101 Secy.—James E. Rowe, P. O. Box 387, McCrory 72101
YELL	Pres.—James O. Pennington, P. O. Box 68, Ola 72853 Secy.—Walter P. Harris, P. O. Box 487, Danville 72833

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY 1977-1978

President	W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205
President-elect	George F. Wynne, 113 W. Cypress, Warren 71671
First Vice President	Ken Lilly, 1120 Lexington, Fort Smith 72901
Second Vice President	Jerry Mann, 416 Main St., Arkadelphia 71923
Third Vice President	A. Henry Thomas, 500 S. University, Little Rock 72205
Secretary	Elvin Shuffield, 110 Doctors Park Bldg., Little Rock 72205
Treasurer	Kenneth R. Duzan, 443 West Oak, El Dorado 71730
Speaker, House of Delegates	Amail Chudy, 1801 Maple, North Little Rock 72114
Vice Speaker of House	Asa A. Crow, #1 Medical Drive, Paragould 72450
Journal Editor	Alfred Kahn, Jr., 1300 West Sixth, Little Rock 72201
Delegates to AMA	Purcell Smith, P. O. Box 5675, Little Rock 72205 Joe Verser, P. O. Box 106, Harrisburg 72432
Alternates	T. E. Townsend, 1420 West 43rd, Pine Bluff 71603 A. E. Andrews, P. O. Box 689, Texarkana 75501
Executive Vice President	C. C. Long, P. O. Box 1208, Fort Smith 72902

EXECUTIVE COMMITTEE OF THE COUNCIL

Chairman of the Council John P. Burge, Lake Village Clinic, Lake Village 71653

President W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205

President-elect George F. Wynne, 113 W. Cypress, Warren 71671

Secretary Elvin Shuffield, 110 Doctors Park Bldg., Little Rock 72205

COUNCILORS

District	Councilor Term Expires '78	Councilor Term Expires '79	Counties in District
1.	*John B. Kirkley P. O. Box 1478 Jonesboro 72101	Merrill J. Osborne 527 N. 6th Blytheville 72315	Clay, Craighead, Crittenden, Fulton, Greene, Lawrence, Mississippi, Poinsett, Randolph, and Sharp
2.	John E. Bell 1400 West Pleasure Searcy 72143	*Paul Gray P. O. Box 2437 Batesville 72501	Cleburne, Conway, Faulkner, Independence, Izard, Jackson, Stone, and White
3.	*L. J. P. Bell 626 Poplar Helena 72342	David L. Lockhart P. O. Box 70 Forrest City 72335	Arkansas, Cross, Lee, Lonoke, Monroe, Phillips, Prairie, St. Francis, and Woodruff
4.	John P. Burge Lake Village Clinic Lake Village 71653	*Raymond Irwin 1421 Cherry Pine Bluff 71601	Ashley, Chicot, Desha, Drew, Jefferson, and Lincoln
5.	*J. B. Jameson, Jr. P. O. Box 994 Camden 71701	John H. Moore 412 N. Washington El Dorado 71730	Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita, and Union
6.	*C. Lynn Harris P. O. Box 10 Hope 71801	A. E. Andrews P. O. Box 689 Texarkana 75503	Hempstead, Howard, Lafayette, Little River, Miller, Nevada, Pike, Polk, and Sevier
7.	*Robert F. McCrary 505 West Grand Hot Springs 71901	Curtis B. Clark 200 South Rose Sheridan 72150	Clark, Garland, Grant, Hot Spring, Montgomery, and Saline
8.	*William S. Orr, Jr. St. Vincent Infirmary Little Rock 72201	W. Ray Jouett 750 Med. Towers Bldg. Little Rock 72205	Pulaski
9.	Rhys A. Williams P. O. Box 1118 Harrison 72601	*Morris M. Henry P. O. Box 1767 Fayetteville 72701	Baxter, Benton, Boone, Carroll, Madison, Marion, Newton, Searcy, Van Buren, and Washington
10.	*Kemal Kutait 1120 Lexington Fort Smith 72901	Charles F. Wilkins 3105 West Main Place Russellville 72801	Crawford, Franklin, Johnson, Logan, Perry, Pope, Scott, Sebastian, and Yell

*Senior Councilor



MRS. KEMAL KUTAIT

Fort Smith

President 1977-1978

Arkansas Medical Society Auxiliary

**CONVENTION REPORT
ARKANSAS MEDICAL SOCIETY AUXILIARY**

The Arkansas Medical Society Auxiliary held its annual meeting in Little Rock April 24-25 at the Camelot Inn.

The Auxiliary has 750 paid members as of the beginning of the meeting.

Distinguished guests who attended the convention were Mrs. Chester L. Young, president-elect of the American Medical Association Auxiliary, and Mrs. Linus Hewit, president of the Woman's Auxiliary to the Southern Medical Association.

On behalf of the American Medical Association Education and Research Foundation (AMAEERF) Mrs. Deno Passas presented a check for \$11,346 to the Dean of the University of Arkansas School of Medicine, Dr. Thomas A. Bruce.

Officers elected for 1977-78 for the State Auxiliary were:

President: Mrs. Kemal Kutait, Fort Smith

President-elect: Mrs. Walter Mizell, Benton

Recording Secretary: Mrs. Joe Lyford, Jr., Russellville

Treasurer: Mrs. J. W. Downs, Little Rock

Northeast Vice President: Mrs. Larry Lawson, Paragould

Northwest Vice President: Mrs. McDonald Poe, Fort Smith

Southwest Vice President: Mrs. A. E. Andrews, Texarkana

Southeast Vice President: Mrs. Ray Jouett, Little Rock

Diagnostic Patterns in Disability

Arkansas and the Nation*

This short statistical analysis of data compiled by the Office of Research and Statistics, Social Security Administration, shows the extent and nature of Arkansas' participation in the social security disability program. It compares some of the State's data with national averages, and includes a comparison of worker disability allowances by diagnostic groups for Arkansas and the U. S. overall.

Under the provisions of the social security disability program, the nation's largest disability plan, a worker under 65 can receive monthly

*The Office of Research and Statistics, Social Security Administration, is actually the "author" of Diagnostic Patterns in Disability, Arkansas and the Nation. The article was released by Dr. Ben Dewbre, Jr., Senior Medical Consultant.

benefits if he or she becomes unable to work due to a mental or physical impairment that has lasted — or is expected to last — at least 12 months or is expected to result in death.

Almost 80 million workers can count on monthly cash benefits in the event of such severe and extended disability. In addition, the dependents of these workers are also eligible for monthly benefits. Nearly 2.4 million workers and 1.8 million dependents are now receiving disability benefits at the rate of more than \$7.5 billion a year.

Currently, 37,100 disabled workers in Arkansas are receiving \$7,600,000 a month in benefits. In addition, 8,400 wives or husbands of disabled workers and 24,000 children of disabled workers

Table I. -- Social Security Worker Disability Allowances 1972 -- Diagnostic Groups

Diagnostic Group	U. S.		Arkansas	
Diseases of the circulatory system.....	146,684	32.2	2,099	35.1
Diseases of the musculoskeletal system.....	75,923	16.7	1,204	20.1
Mental, psychoneurotic, and personality disorders.....	45,253	9.9	426	7.1
Neoplasms.....	43,667	9.6	427	7.1
Accidents, poisonings, and violence.....	31,728	7.0	383	6.4
Diseases of the respiratory system	33,038	7.3	529	8.8
Diseases of the nervous system and sense organs.....	28,216	6.2	347	5.8
Endocrine system, metabolic, and nutritional diseases...	17,352	3.8	182	3.0
Diseases of the digestive system.....	13,369	2.9	121	2.0
Infective and parasitic diseases.....	8,627	1.9	119	2.0
Other.....	11,541	2.5	141	2.4
Total	455,398	100.0 ^{1/}	5,978	100.0 ^{1/}

^{1/} Figures may not total 100% due to rounding.

in Arkansas are receiving benefits at a monthly rate of \$500,000 and \$1,300,000 respectively.

The latest year for which tabulated data is available showing disabled worker diagnostic patterns by State is 1972. Disabled workers in Arkansas who began receiving benefits in that year constituted 5,978 of the 455,398 new beneficiaries nationwide.

Table I compares the frequency of diagnostic groups in Arkansas with the U. S. overall. It shows that diseases of the circulatory system comprised the largest diagnostic group in the country in 1972. Diseases of the musculoskeletal system and mental disorders, including psychoneurotic and personality disorders, were the second and third largest diagnostic groups, respectively. All states do not, however, follow this pattern.

Within the overall diagnostic groups, the most prevalent *primary diagnosis* in both Arkansas and the nation in 1972 was chronic ischemic heart disease. Arkansas recorded 1,298 cases that

year. The nation's second most common primary diagnosis, osteoarthritis, accounted for 327 cases in Arkansas. Following these, in order of decreasing national prevalence, was displacement of intervertebral disc, with Arkansas reporting 414 cases, followed by schizophrenia with 157 cases. There were 241 cases of emphysema in Arkansas; 114 cases of diabetes mellitus, and rheumatoid arthritis and allied conditions accounted for 196 cases in Arkansas that year. Acute cerebro-vascular disease, listed eighth among the most prevalent primary diagnoses in 1972, recorded 181 cases in Arkansas; malignant neoplasm of trachea and lung 110 cases; and other respiratory diseases ranked tenth with 190 cases.

Additional information about the social security disability program in Arkansas can be obtained through the Disability Determination for Social Security Administration, Suite 700, The 1515 Building, 1515 West Seventh Street, Little Rock, Arkansas 72202, telephone 501-372-1262.



Hormonal Contraception: Current Perspectives

Part 1. An Analysis of Available Agents

Gary P. Wood, M.D.*

With the exception of antibiotics, few drug preparations have had the tremendous medical and social impact that we have seen with oral contraceptive pills (OC's). They have made family planning a practical reality and there can be little doubt that they have had a significant role in the changing social attitudes of the 60's and 70's.

It is estimated that some 10 million women in the United States currently use OC's¹ with new users being added continually. That these women present a variety of needs is evidenced by the more than two dozen preparations currently available. The purpose of this paper is to review the currently available forms of hormonal contraception with regard to their mechanism of action, effectiveness and side effects.

Oral Contraceptives

A. Mechanism of action

At this time, there is no question that the effectiveness of an OC preparation in preventing pregnancy is directly related to its ability to in-

hibit ovulation. While there are a number of other effects which are related to fertility, such as alterations in tubal motility, cervical mucus, and endometrial physiology, the agents which rely on these effects alone are simply not as effective as those which actively inhibit ovulation.

The concept of using hormones to inhibit ovulation is a relatively old one. The only agents which had previously been available for this purpose, however, were the estrogens (primarily diethylstilbestrol) and testosterone. Neither of these agents was acceptable for contraception since, in dosages adequate for contraception, the estrogens produced nausea and erratic uterine bleeding and testosterone caused hirsutism and virilization. It was the development of the synthetic progestational agents in the 40's and 50's that made the inhibition of ovulation without offensive side effects a practical reality.

B. Components

1. Estrogens

The estrogenic compounds which are currently used in OC preparations are ethinyl estradiol and mestranol which are both derived from 17 β -estradiol, the physiologic ovarian estrogen (see Figure 1). The alkyl radical at the 17 position

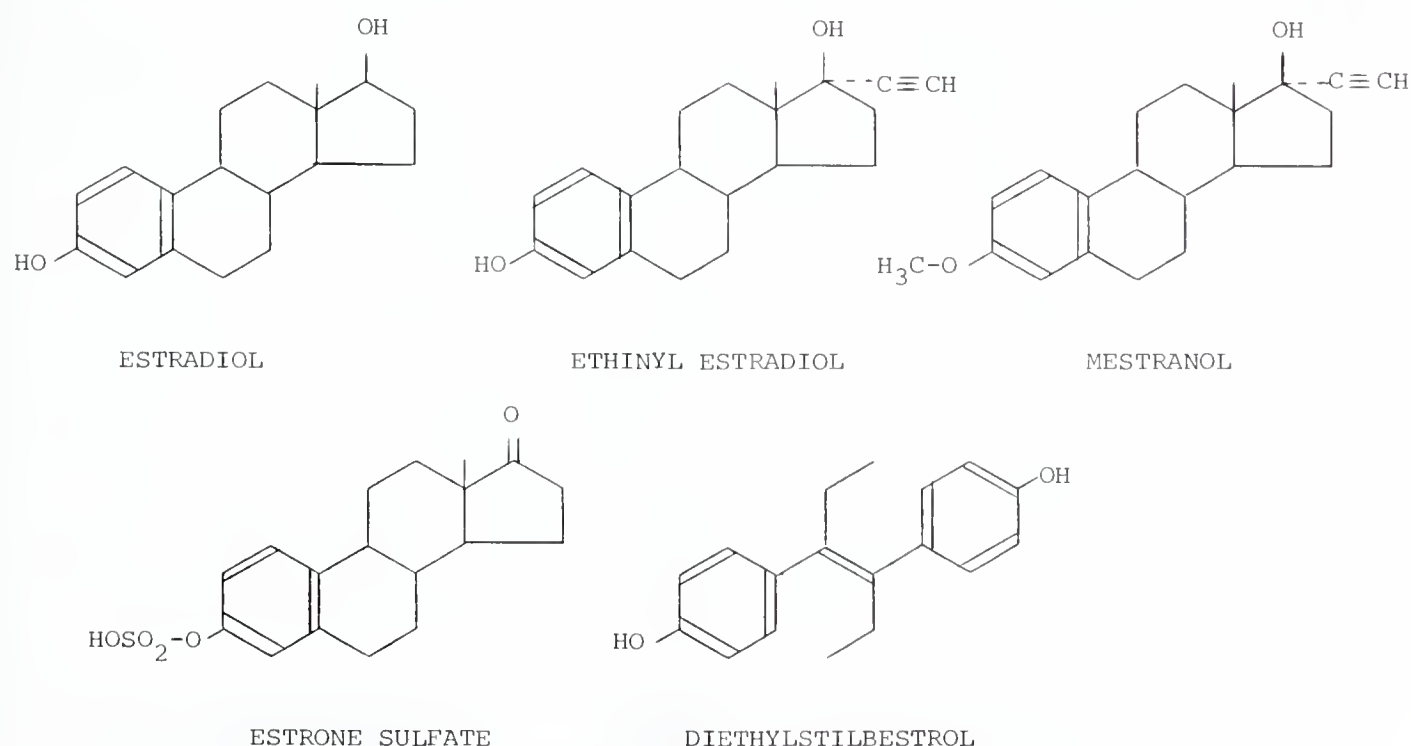


Figure 1. Structural relationship of estrogen preparations to the natural, "physiologic" estrogen, 17 β -estradiol.

makes these compounds much more resistant to degradation after oral administration than are the naturally occurring estrogens. Mestranol is the 3-methyl ether of ethinyl estradiol, and this modification makes it almost totally inert *in vivo*. It is only after absorption and cleavage of the 3-methyl group to "liberate" ethinyl estradiol that a significant estrogenic effect can be obtained. Since the conversion of mestranol to ethinyl estradiol is incomplete, a larger dosage of mestranol is required to produce the same effects as a given dosage of ethinyl estradiol. The *in vivo* dose effectiveness of mestranol is about 70 percent that of ethinyl estradiol.²

Diethylstilbestrol (DES) (Figure 1) is a non-steroidal estrogenic compound whose potency as an estrogen is about 1/25 that of ethinyl estradiol. While DES is not used in the conventional OC's, it presently has a unique role as a "post-coital" contraceptive agent. The "conjugated estrogens" of either natural or synthetic origin contain primarily estrone sulfate (Figure 1) and are not currently used for contraceptive purposes.

2. Progestins

The structural relationships of the progestational agents currently in use as contraceptive agents are shown in Figure 2. It is significant that all progestins currently used in OC prepa-

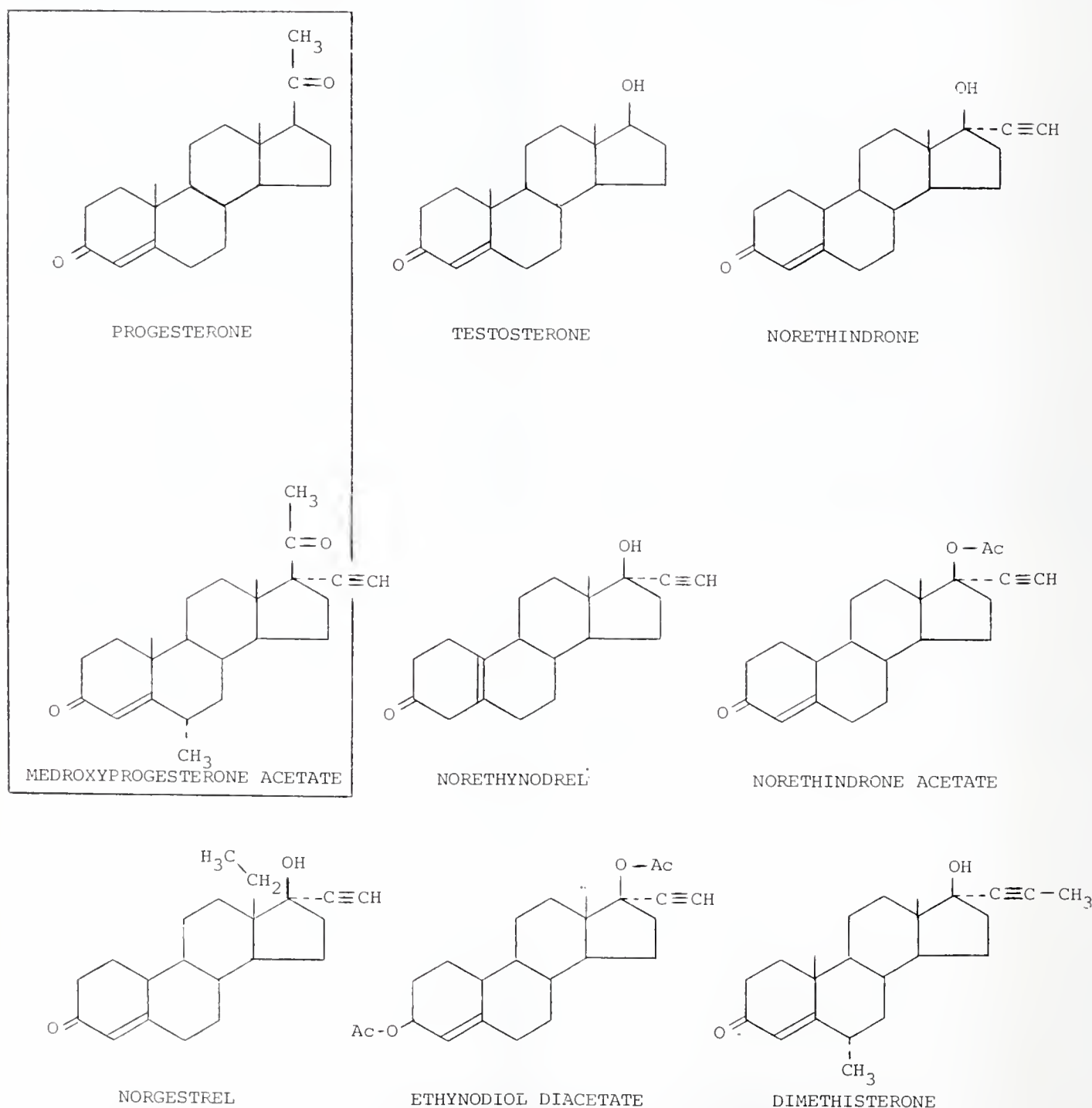


Figure 2. Structural relationship of the synthetic progestational agents to their parent compounds, progesterone and testosterone.

rations are structurally related to testosterone and thus tend to have variable amounts of androgenic potential during pregnancy and their use during pregnancy has been associated with masculinization of the female fetus. It is also important to remember that the various compounds vary markedly in potency and therefore direct comparisons on a simple weight basis are not valid.

The only synthetic progestin which is derived from progesterone and is currently for use as a contraceptive agent is medroxyprogesterone acetate (Figure 2). This compound is not used in OC's but rather as an injectable, long-acting contraceptive agent.

C. Preparations

In the years since the first OC preparations were introduced, a number of changes have occurred in the manner of administration as well as the composition of these agents. These agents are shown in Table 1.

The original regimen for OC's consisted of taking a pill daily for 20 days and waiting to resume pill taking until the fifth day after menstrual flow began. Because of the rather variable interval from the last pill until the onset of

menses, cycle length with this regimen ranged from 25 to 32 days and a great deal of confusion was generated by the active role required of the patient in keeping track of the pills and menstrual flow. In addition to these problems, several other questions arose, including such things as: 1) whether to count the first day of spotting as the first day of menses or wait until full menstrual flow began, and 2) when to take the first pill of the next cycle if menstrual flow lasted more or less than five days. Most of these problems have been solved by the development of the 28-day OC cycle. This consists of taking OC pills daily for 21 days followed by seven days off pills and, after the 28 days are completed, a new cycle of pills is begun with no regard to the time of onset or cessation of menstrual flow nor to its quality or quantity. This 28-day routine has greatly simplified OC therapy while retaining an excellent contraceptive effectiveness.

1. Combination type: The basis for this type OC is that each pill of the hormone cycle contains an estrogen and a progestin. This is the original OC type and, in general, provides excellent contraceptive effect through inhibition of ovulation. The OC's in this category can be

Brand Names		Progestin	mg/tablet	Estrogen	ug/tablet
<u>Combination</u>					
Group I	Ortho-Novum 10 mg	Norethindrone	10	Mestranol	60
	Ortho-Novum 2 mg	Norethindrone	2	Mestranol	100
	Norinyl 2 mg	Norethindrone	2	Mestranol	100
	Norlestrin 2.5/50	Norethindrone Acetate	2.5	Ethinyl Estradiol	50
	Enovid 5 mg	Norethynodrel	5	Mestranol	75
	Evovid E	Norethynodrel	2.5	Mestranol	100
Group II	Ovulen	Ethinodiol Diacetate	1	Mestranol	100
	Demulen	Ethinodiol Diacetate	1	Ethinyl Estradiol	50
	Ovral	Norgestrel	0.5	Ethinyl Estradiol	50
	Ortho-Novum 1/80	Norethindrone	1	Mestranol	80
	Norinyl 1+80	Norethindrone	1	Mestranol	80
	Norlestrin 1/50	Norethindrone Acetate	1	Ethinyl Estradiol	50
Group III	Ovcon-50	Norethindrone	1	Ethinyl Estradiol	50
	Ortho-Novum 1/50	Norethindrone	1	Mestranol	50
	Modicon	Norethindrone	0.5	Ethinyl Estradiol	35
	Norinyl 1+50	Norethindrone	1	Mestranol	50
	Brevicon	Norethindrone	0.5	Ethinyl Estradiol	35
	Loestrin 1.5/30	Norethindrone Acetate	1.5	Ethinyl Estradiol	30
	Loestrin 1/20	Norethindrone Acetate	1	Ethinyl Estradiol	20
	Zorane 1/50	Norethindrone Acetate	1	Ethinyl Estradiol	50
	Zorane 1.5/30	Norethindrone Acetate	1.5	Ethinyl Estradiol	30
	Zorane 1/20	Norethindrone Acetate	1	Ethinyl Estradiol	20
	Lo/Ovral	Norgestrel	0.3	Ethinyl Estradiol	30
<u>Progestin-only</u>					
Micronor		Norethindrone	0.35	—	—
Nor-QD		Norethindrone	0.35	—	—
Ovrette		Norgestrel	0.075	—	—

Table I. Composition of currently available oral contraceptive agents.

divided into three basic groups as shown in Table 1. The first group (Group I) contains the oldest OC's and represents the early period when large amounts of the hormones were used to assure adequate contraception. Consequently, these OC's were also accompanied by marked side effects related to their predominance of either estrogenic or androgenic effect. It has since been learned that these OC's contain much more hormone than is actually necessary to inhibit ovulation and there is, therefore, very little indication for the routine use of these preparations.

The second group of combination OC's (Group II) includes those preparations in which the amount of hormone used has been reduced so that side effects are minimal and these pills tend to be neutral in their hormone effect. Contraceptive effectiveness, however, is as good as the older, high-dose preparations. This group is characterized by minimal side effects and maximum effectiveness and probably represents the most universally acceptable group of preparations at the present time. The accepted pregnancy rate for the agents in Groups I and II is 0.1 percent or less.*

The third group (Group III) contains a series of preparations in which the hormone dosage has been reduced below a very real, if somewhat ill defined, level. These pills not only have the disadvantage of a somewhat higher pregnancy rate than the preceding group, but also have a new pattern of side effects as a result of their very low dosage. While pregnancy rates for the agents in this group are difficult to determine because of their relative newness, they are estimated at 0.2 - 0.3 percent or greater. The major problems with these pills (other than pregnancy) have been an increased incidence of intermenstrual bleeding and amenorrheic cycles. Even though this group does contain a low estrogen dosage which is held to be advisable, the significant side effects, including a slightly higher pregnancy rate, would seem to make them less than universally acceptable as oral contraceptive agents.

2. Sequential type: The sequential regimen for oral contraception was introduced in 1963, about three years after the approval of the combination OC's in the United States.³ Estrogen only was administered for 16 days followed by a combination of estrogen and progestin for the

next five days with the pill cycle being repeated on the fifth day after menstrual flow began. The rationale for this dosage schedule was that it more closely mimicked the normal hormonal cycle than the combination type OC's. This is borne out by serial studies of endometrial histology, cervical mucus, etc., which compare quite favorably with the spontaneous, ovulatory menstrual cycle. While certain aspects of this regimen may be desirable, the use of estrogen alone in the dosage range used (see Table I) is simply not as effective in inhibiting ovulation as the combination preparations. These agents have been removed from the market because of their association with an increased incidence of endometrial adenocarcinoma.

3. Progestin-only type: These OC's contain no estrogen and they are taken daily on a continuous basis with no break for menstruation. The mechanism of action of these OC's is quite different from the conventional types in that they do not routinely prevent ovulation. It would seem that their contraceptive effect is achieved by alterations in cervical mucus and endometrial and tubal physiology. As might be expected, the pregnancy rate with these preparations is several times that of the more conventional OC's. The OC's bear the same contraindications as conventional OC's and thus cannot be used for those patients for whom conventional OC's are unacceptable (i.e. those with varicose veins, etc.). While these OC's present a very interesting and attractive concept, the high incidence of menstrual aberrations and relatively high pregnancy rate coupled with the fact that they do not broaden the spectrum of patients for whom OC's are applicable must lead us to the conclusion that they have very little place in current contraceptive practice.

Discussion

There is no single hormonal contraceptive agent which is suitable for all women. The ideal agent for an individual is that one which is 100% effective while providing the least side effects and potential adverse reactions. That all these requirements cannot be met by a single OC agent is evidenced by the many OC's available and the frequent release of new preparations.

Of extreme importance in the design and selection of hormonal contraceptive agents is the fact that the different compounds available, both estrogens and progestins, have their own indi-

*Pregnancies per hundred women-years — The number of pregnancies which would occur if 100 women used the OC's for one year.

vidual characteristics both with regard to hormonal activity and potency. The difference between the estrogens used (mestranol and ethinyl estradiol) is related primarily to potency, as previously discussed. The progestins, however, differ from each other not only in potency as a progestational agent, but also in the amount of estrogenic and androgenic activity possessed by each compound. Thus, in the dosage required to function effectively as a progestational agent, we find that norethynodrel exerts a considerable estrogenic effect while norethindrone exerts significant androgenic effects. A comparison of oral contraceptive agents on the basis of the quantity of steroid used, either estrogen or progestin is of absolutely no value and may, in fact, be misleading unless the relative potencies and characteristics of the compounds are also considered.

There are few indications for the use of Group I combination OC's. These preparations, while quite effective as contraceptive agents, contain more steroid than is necessary and the only noticeable difference over the lower dosage preparations is a rather marked increase in side effects and adverse reactions.

The low dosage preparations in Group III have significantly reduced the amount of estrogen so that the risk of vascular problems such as thrombophlebitis and pulmonary embolism is theoretically less than the preparations in Groups I and II. This advantage is offset, however, by the increased incidence of both intermenstrual bleeding and amenorrheic cycles along with a significant increase in the pregnancy rate associated with these agents. It must be noted that these OC's bear the same contraindications as the higher dose preparations and patients with varicose veins, thrombophlebitis, and previous thromboembolic phenomena should not use them. Each patient must decide if the *possible* decrease in vascular problems seen with these OC's justifies the significant increase in both pregnancy rate and abnormal menstrual patterns.

In spite of the theoretical advantage of the sequential OC's in their mimicking the cyclic hormonal output of the ovary, these agents do show a pregnancy rate which is greater than that

seen with conventional combination OC's. They are no longer available because of their association with the development of endometrial adenocarcinoma.

Similarly, the low-dose progestin only "mini-pills" show a high pregnancy rate coupled with very erratic bleeding patterns and cannot be recommended at this time.

At the present time, the Group II OC's seem to offer the best balance between lack of significant side effects and effective pregnancy rate and will probably provide the best overall results as oral contraceptive agents for most women.

Both diethylstilbestrol and medroxyprogesterone acetate have very specific contraceptive indications and provide effective contraception within their framework of applicability. Their use, along with other agents still in the developmental stage, will be discussed in Part 2.

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The Evaluation and Management of Patients with Urinary Tract Calculous Disease

Part 1. Patient Evaluation

Nabil K. Bissada, M.D.*, Alex S. Finkbeiner, M.D.*, John F. Redman, M.D.*

Our understanding of the mechanism of urinary calculous formation and of methods of prevention has been enhanced in recent decades to the extent that at the present time, most forms of calculous disease are considered potentially preventable. Many patients with urolithiasis are first seen by a non-urologist physician. The evaluation and management of urolithiasis is reviewed for non-urologist physicians. The first part of this review outlines the principles of evaluation of patients with urolithiasis. The second part will outline the various therapeutic modalities applicable to patients with urolithiasis.

Etiology of Urolithiasis

Most patients with urinary tract calculi belong to the group of idiopathic renal lithiasis. In spite of the term idiopathic, we can now recognize several factors that predispose these patients to stone formation. Thus, subtle disorders such as hypercalcuria without hypercalcemia, slight hyperoxaluria, abnormalities of uric acid metabolism, increased urine alkalinity, or a primary defect in natural urinary crystallization inhibitors have been found in many patients with idiopathic calculous disease.

In about 20 to 30 percent of patients, stone formation can be directly related to one of the following abnormalities:

1. Hypercalcemic states such as primary hyperparathyroidism, sarcoidosis, immobilization, hypervitaminosis D, milk-alkali syndrome, neoplastic disorders, Cushing's syndrome, or hyperthyroidism.
2. Gastrointestinal disease leading to acquired hyperoxaluria and calcium oxalate lithiasis, or to uric acid lithiasis.
3. Infection with urea-splitting organisms with

formation of struvite or apatite lithiasis.

4. Renal tubular syndromes such as cystinuria and renal tubular acidosis.
5. Enzyme disorders such as primary hyperoxaluria and xanthinuria.
6. Uric acid lithiasis: This may be idiopathic or secondary to conditions such as gout, myeloproliferative disorder, low urinary output states or hyperparathyroidism.

In general, these conditions lead to urine supersaturation and/or a change in urine pH. Supersaturation of urine may also occur during periods of dehydration. The urine pH affects the solubility of certain crystalloids. This is most important when we consider struvite (magnesium ammonium phosphate) stones which tend to form in a highly alkaline urine, or in considering uric acid and cystine stones which form in an acid urine.

Although only about one-fourth of all patients with urolithiasis will have a major abnormality leading to stone disease, the time and effort invested in attempting to determine the etiology of recurrent calculous formation is often rewarding. Management of existing calculi and prevention of new calculous formation may be difficult without correcting the primary etiologic condition. Furthermore, many of these conditions are associated with correctable systemic diseases which may initially manifest themselves with calculous formation.

Composition of Urinary Tract Calculi

Knowledge of the crystalline structure of the calculus provides basic information for formulation of the therapeutic plan. Accordingly, any available calculi should be analyzed.* The more common calculous compositions are:

1. Calcium oxalate
2. Calcium phosphate (apatite)

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*Louis C. Herring and Company, P. O. Box 2191, Orlando, Florida 32802.

3. Magnesium ammonium phosphate (struvite)
4. Uric acid
5. Cystine

Morbidity Due to Urolithiasis

The presence of calculi in the urinary tract is conducive to renal damage, the extent of which is influenced by the extent of obstruction and presence or absence of infection. The effects of urinary calculi include:

1. Obstruction of the ureter or the ureteropelvic junction is usually associated with renal pain or ureteral colic. Long-standing obstruction leads to hydronephrosis and renal parenchymal loss.
2. Calculi may be contributing factors in the persistence of urinary tract infection and calculous pyelonephritis.
3. Coexistence of infection and obstruction may precipitate a serious bacteriuria or may lead to pyonephrosis with complete loss of renal function.
4. Spread of infection with urea-splitting organisms to the contralateral side may produce secondary struvite stone formation in the opposite kidney.
5. Rarely, renal parenchyma is replaced by fatty tissue (replacement lipomatosis) or metaplastic changes occur in the urothelium which may proceed to the development of squamous cell carcinoma.

Evaluation of Patients With Urolithiasis

Evaluation of patients with urinary tract calculi may be conveniently discussed under three broad headings.

I. Clinical History

Certain features in the clinical history are valuable in the diagnosis and management of patients with urolithiasis.

The age, sex and race are important. Idiopathic renal lithiasis occurs predominately in adult white males. Hyperparathyroidism and infected struvite lithiasis occurs more commonly in women than in men. Stone disease before puberty is frequently associated with urinary tract infection and/or obstruction; or with meta-

bolic disease such as renal tubular acidosis, cystinuria and primary hyperoxaluria.

Symptoms suggestive of hypercalcemia, gout or small bowel disease should be sought. Medications such as acetazolamide, absorbable antacids or absorbable salicylates may influence calculous formation. The patient's dietary habits may be pertinent. For example, the amount of protein in the diet will modify uric acid excretion; and drinking large amounts of fruit juices or tea augments urinary oxalates. A history of urinary tract infection before or after the initial formation of a calculus is important. The appearance and analysis of previously removed or available calculi are always important. A history of residence in a known stone-stress area, such as the southeastern United States, may also be helpful.

A family history of urolithiasis implies an increased risk of continued calculous formation in patients with idiopathic renal lithiasis, and is especially important in the known hereditary disorders, such as cystinuria and renal tubular acidosis. Generally physicians are well aware of the classic signs and symptoms of an acute renal colic, but it is important to stress that many stones are asymptomatic.

II. Laboratory Analysis

An assessment of renal function by serum creatinine concentration is indicated. Postprandial serum calcium and phosphorus and albumin values are necessary to establish the presence or absence of hyperparathyroidism or other disorders of calcium metabolism. The concentration of carbon dioxide and chloride should be obtained in order to determine the possible presence of renal tubular acidosis. The serum uric acid may be elevated in patients with uric acid lithiasis, hyperparathyroidism and idiopathic calcareous calculi. Some medications such as salicylates and thiazides can produce an elevation in serum uric acid. The serum calcium, phosphorus protein and uric acid determinations should be performed on at least three different occasions after the patient has regained basal renal function.

Simple urinalysis may provide valuable information in patients with urolithiasis. A high urinary pH may indicate an infection with urea-splitting organisms, renal tubular acidosis, or prior ingestion of large amounts of absorbable

alkali. A low urinary pH is the most common abnormality detected in patients with uric acid lithiasis. Failure to acidify the urine below pH of 5.5 on serial urines may indicate renal tubular acidosis. The presence of crystals, such as calcium oxalate, uric acid, phosphate, or cystine crystals in the urinary sediment is a helpful finding. Urine cultures should be obtained initially and repeated at intervals during treatment. A

qualitative test for urinary cystine should be done in any patient with radiopaque calculus of unknown composition, and if positive, a quantitative test should be obtained.

A 24 hour urine analysis for calcium, phosphorus, uric acid and creatinine should be obtained in recurrent stone formers to assess hypercalciuria and uricosuria. A stone analysis for available calculi is mandatory.

III. Radiological Examination

Adequate radiography of the urinary tract, including plain abdominal radiography, tomography and excretory urography (I.V.P.) are essential. These will provide information on the size, number and location of calculi and the degree of obstruction and the presence or absence of any associated pathology (Fig. 1A-E). Recent radiograms should be compared to previous ones

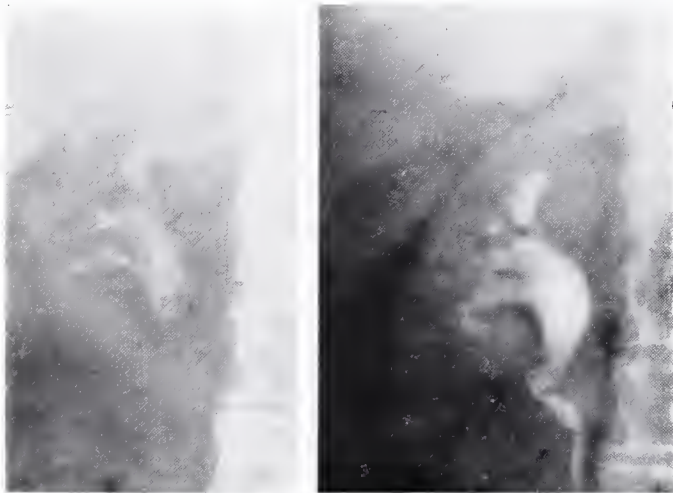


Figure 1A.
Plain radiogram (left) and excretory urogram (right) showing multiple stones filling the renal pelvis and calyces.

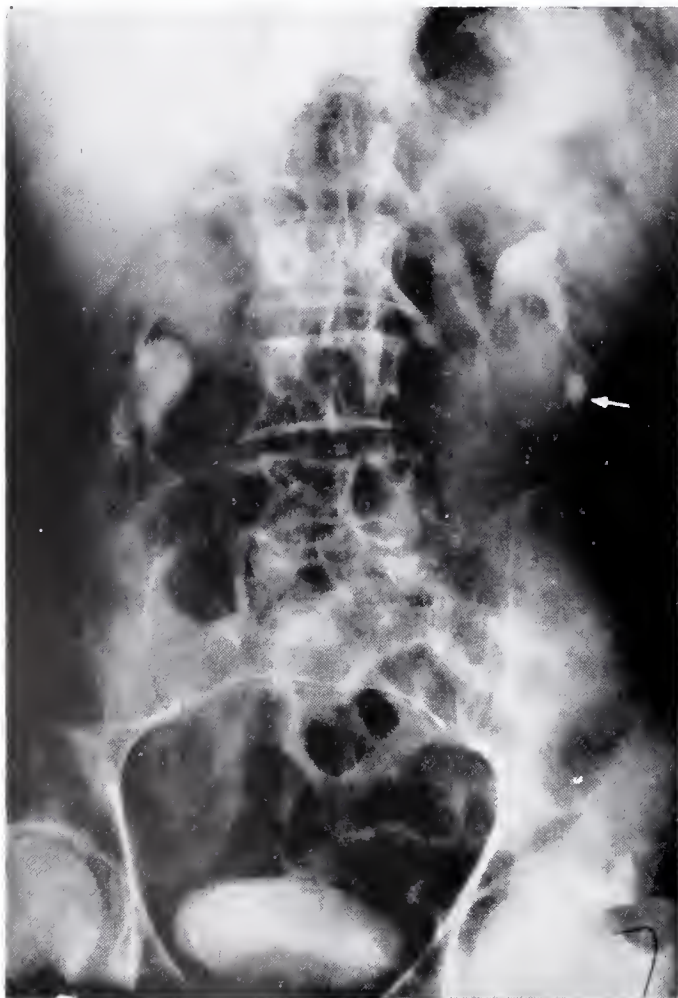


Figure 1B
Stone in a calyceal diverticulum (arrow).

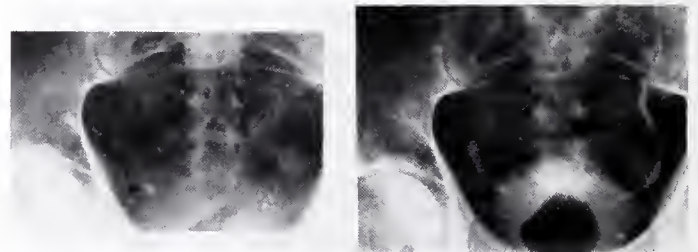


Figure 1C.
Calcific density (arrow) seen on the plain radiogram (left) could be a ureteral stone; excretory urogram demonstrating the lower left ureter "pointing" at the stone (right).

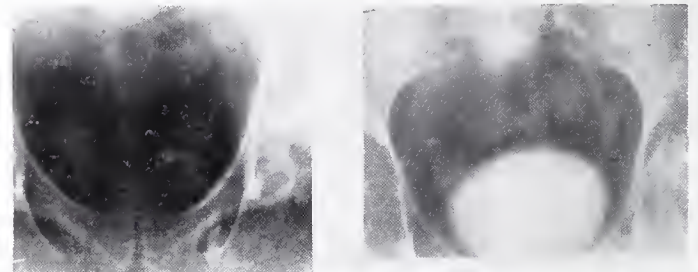


Figure 1D.
Plain radiogram showing a stone in the vicinity of the uretero-vesical area (left); excretory urogram showed that the stone was in a ureterocele (right).

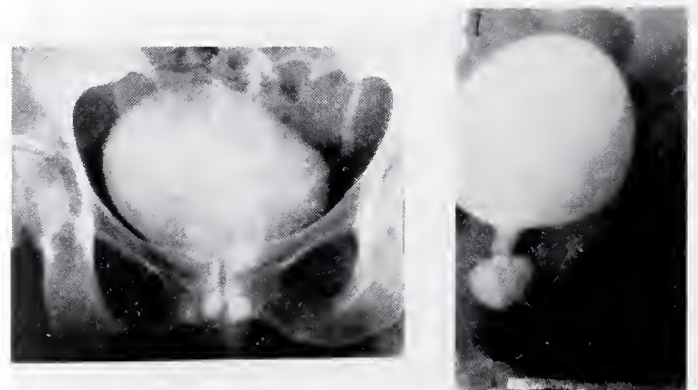


Figure 1E.
Multiple calculi seen below the bladder in a female with history of U.T.I. and dysparunia are most probably in a urethral diverticulum (left); a voiding cystourethrogram demonstrates the diverticulum (right).

when available in order to determine the occurrence of new stones or growth of a previously detected calculus. Further, the radiographic aspects of calculi often provide information about stone composition. For instance, calcium oxalate and calcium phosphate stones are radiopaque



Figure 2.
Plain radiograph showing a calcium oxalate calculus (proved by stone analysis).

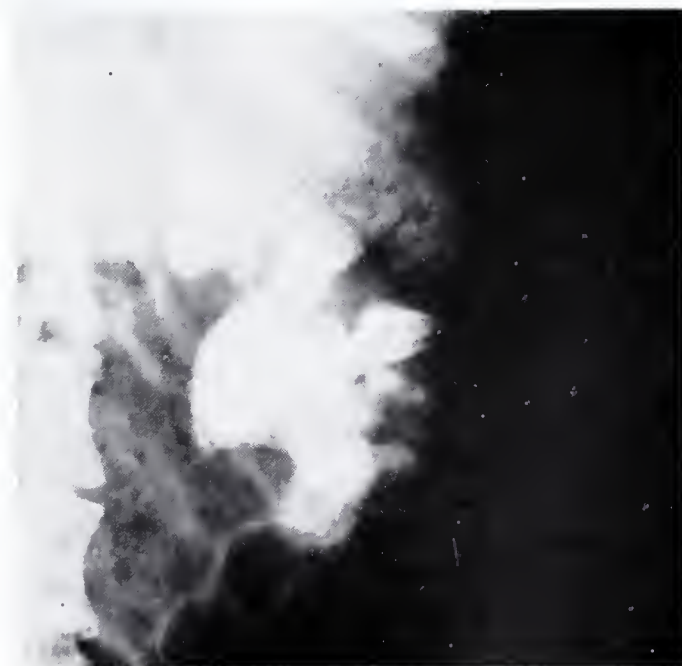


Figure 3.
Plain radiograph demonstrating a staghorn calculus.

(Fig. 2). Struvite stones are less radiopaque and often form staghorn calculi (Fig. 3). Pure uric acid stones are radiolucent and will not be seen on a plain film but are detected as radiolucent filling defects on the excretory urogram (Fig. 4A and 4B). Cystine stones are usually opaque (Fig. 5).

Activity of Urinary Tract Calculous Disease

Two forms of activity of urolithiasis should be distinguished. Surgical activity means that the patient has colic, obstruction or infection associated with the calculus and may require surgical intervention. Such a calculus might have been formed many years prior to presenting with surgical activity.

Metabolically active urolithiasis, on the other hand, is said to exist when there is radiographic evidence of calculous growth, of a new calculous formation, or when the patient has passed calculi or gravel during the previous year. When none of these criteria is fulfilled, classification of metabolically "inactive urolithiasis" is made. If no such history is obtained and no previous x-rays



Figure 4A.
Excretory urogram showing a large filling defect in the right renal pelvis due to a uric acid stone.

are available, a classification of metabolic "activity unknown" may be used.



Figure 4B.

Multiple filling defects on urography due to uric acid calculi.

In the presence of infected renal lithiasis or obstruction, metabolic activity cannot be assessed until the secondary problem has been eliminated. Whereas the surgical activity of urolithiasis influences the surgical management, it is the metabolic activity that guides the extent of medical management.

Summary

An outline of the mechanism of stone formation and a practical approach to the evaluation of patients with urolithiasis is discussed. The importance of a careful history, laboratory and radiographic evaluation, and of stone analysis was stressed.

Two forms of stone activity, surgical and metabolic, were identified; and the importance of each was discussed.

*A list of references will be available with Part II of this series.

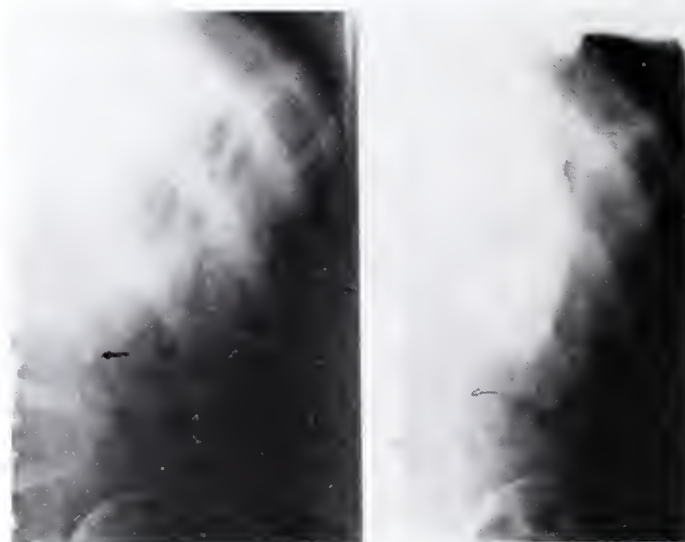


Figure 5.

Plain radiograph showing a calcific density in region of upper ureter (left); excretory urogram showing intense nephrogram indicating ureteral obstruction (right). Analysis proved that the calculus was composed of cystine.



Avascular Necrosis of the Femoral Head

Philip H. Johnson, M.D.*

Recently a 31-year-old black female was referred to me for hip pain of several months duration. The patient had a definite limp and limited motion of the right hip. X-rays of this hip (Fig. 1) revealed a typical avascular necrosis of the femoral head. Of interest on physical examination was a peculiar obesity involving only the neck, head, and trunk. There were also signs of hirsutism and masculinization. The patient had a neurology workup eight years before for headache and seizures. The patient denied taking steroids and had no family history of sickle cell disease. With this history and the physical appearance of Cushing's syndrome, a basophil adenoma of the pituitary was suspected. After an elaborate endocrine workup with arteriogram, an adrenal tumor was diagnosed. At surgery a 27.5 gm. 4x4x3 cm adrenal adenoma was removed from the right adrenal. Since this time, the patient has undergone femoral head replacement

and implantation of a Bateman prosthesis. With this interesting case as a stimulus, a search for the causes of avascular necrosis of the femoral head was begun. The following is offered as a resume of the etiology of this condition (Table 1).

Table 1

ETIOLOGY OF AVASCULAR NECROSIS OF THE FEMORAL HEAD

1. Fracture of the femoral neck
2. Dislocation of the hip
3. Caisson's disease
4. Sickle cell disease
5. Legg-Perthes disease
6. Gaucher's disease
7. Steroids
8. Alcohol
9. Radiation
10. Lupus
11. Osteomyelitis
12. Slipped capital femoral epiphysis
13. Treatment of congenital dislocated hip

The femoral head and most of the femoral neck is intracapsular. The important circulation to the femoral head is via retinacular vessels in/on the posterior surface of the neck. Any mechanism which mechanically interferes with these vessels will produce changes in the circulation of the end arteries of the head. Hence, varying degrees of avascular necrosis (aseptic necrosis) occurs.

ETIOLOGY

Fractures of the Femoral Neck

Traumatic causes for avascular necrosis are fractures and dislocations. Intertrochanteric frac-

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*Acknowledgement: My sincere appreciation is extended to Drs. Lawson Glover and Grimsley Graham for their assistance on this case.

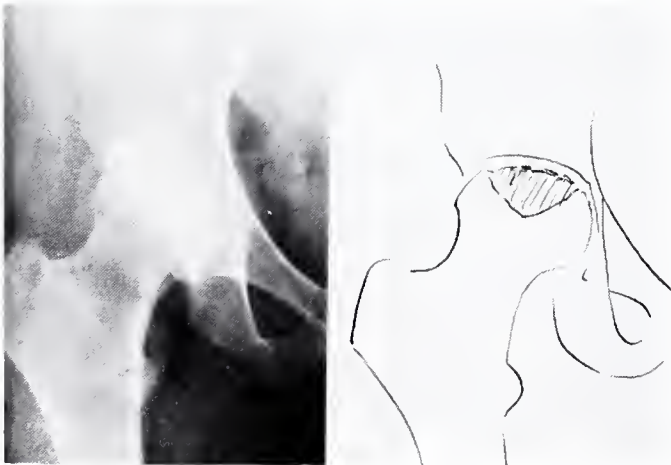


Figure 1

tures rarely cause compromised circulation because the injury is below the level where the vessels enter bone to supply the head. Fractures of the femoral neck, however, take place across the retinacular vessels and produce necrosis of the head in up to one-third of displaced fractures. Even undisplaced fractures have a low incidence of this complication. Usually the fracture itself goes on to union and months later (up to three years), the patient may begin having hip pain from collapse of the apical weight bearing segment of the head.

Dislocation of the Hip

Dislocation of the hip ruptures the ligamentum teres where a small residual circulation may exist and puts pressure on the retinacular vessels by the strangulating effect of the capsule around the herniated head. There is a definite relationship between the length of time in the dislocated position and the incidence of avascular necrosis. Hips reduced within the first twelve hours have a fifteen to twenty percent incidence of avascular necrosis. Hips reduced after twenty-four hours have a very grave prognosis and may be expected to be involved. Actual symptoms and diagnostic X-ray findings may not be seen, however, for as long as two years post-injury.

Bone Infarct (Caisson's Disease)

Fat has a five times greater affinity for nitrogen than does blood. Under conditions of high atmospheric pressure, the fatty tissues absorb circulating nitrogen. As the Caisson worker or scuba diver is brought back to the surface and rapidly decompressed, this nitrogen is released into the blood. These tiny bubbles of gas emboli lodge in many areas causing the "bends," "staggers," etc. Areas of infarction occur in the fatty spongiosa of the long bones of the extremities. Most commonly involved is the upper end of the femur. The lower femur, upper tibia, and upper humerus follow in that order. This same condition was seen in aviators in World War II who flew at high altitudes without adequate oxygen supplies. In these situations, bony collapse rarely occurs. Creeping substitution replaces the dead bone leaving sharply limited scalloped areas of increased bone density. Usually after the initial severe pain subsides, the condition is asymptomatic until arthritis develops later in an adjacent joint.

Hemoglobinopathies

In sickle cell disease and related conditions, lowered oxygen carrying capacity and sickling red cells result in thrombosis, reflex vasospasm, local ischemia, and infarction of bone and soft tissues. Expected X-ray findings are coarse trabeculation and osteoporosis in marrow bones; ground glass and widening diploic spaces in the skull; and decreased vertebral height. Avascular necrosis most often involves the femoral head and is less extensive than in Perthes disease. The lateral one-third of the head is spared. It usually occurs just prior to epiphyseal closure. The Perthes lesion occurs at a younger age.

Legg-Perthes Disease (Coxa Plana)

Any idiopathic avascular necrosis of the femoral head in childhood is referred to as Legg-Perthes disease. This, however, is a disease syndrome which occurs between the ages of four and ten, predominantly in males. It is a self-limited disease in the category of the osteochondroses. The avascular necrosis may involve the entire epiphysis or only the anterior one-half to two-thirds. The disease runs its course progressing through stages of synovitis, necrosis, fragmentation, and healing over a period of three to four years. The ultimate outcome of the hip is dependent on the age of the patient at the onset of the disease, extent of involvement, and the nature and initial time of treatment. Usually some deformity (asymmetry) of the head and shortening and widening of the neck persists into adulthood.

Gaucher's Disease

Gaucher's disease is a hereditary metabolic disorder characterized by the accumulation of the cerebroside "kerosin" in the cells of the reticulo-endothelial system. Hepatosplenomegaly, interference of marrow function (anemia, leukopenia, thrombocytopenia) and destruction of bone are features of the disease. Compression fractures of the vertebrae, pathologic fractures of long bones, and ischemic necrosis of the femoral head occur. Engorgement of the head and neck with Gaucher cells compromises blood flow and the resulting necrosis weakens bony architecture.

Steroids

It has long been observed that prolonged corticosteroid therapy was associated with the development of osteonecrosis. Nowhere is this

more clearly seen than in organ (renal) transplantation. Many patients survive only to be inflicted with a crippling malady of one or both hips. The mechanism is obscure, though increased coagulability of blood, fat embolism, and vasculitis have been suspected. The case mentioned in the introduction is a good example of the massive endogenous steroid production resulting in the same sequelae. Joint injection of steroids has also been suspected as a more unlikely cause for this problem.

Alcohol

A Mayo Clinic series of fifty-two cases of idiopathic avascular necrosis of the head of the femur revealed a seventeen percent incidence of alcoholism. Most orthopedic clinics have had a similar experience. A large daily intake over a long period of time has usually occurred. The exact mechanism of this association is unknown.

Radiation

In this condition, usually over 3,000 R. of X-ray has been given to one of the pelvic organs. In the past, this was commonly administered for carcinoma of the cervix. Many years may transpire between treatment and the development of hip symptoms. Because cartilage is sensitive to radiation, both sides of the hip joint show involvement with sclerosis and cystic change. Increased trabecular markings are present in the adjacent ilium and pubis.

Lupus

Arteritis and vasculitis is thought to be responsible for thrombosis and infarction of the head of the femur. Cases have been reported where avascular necrosis was seen in patients with lupus when not treated with steroids.

Osteomyelitis

Osteomyelitis of the upper end of the femur

is a potentially catastrophic disease. Organisms come to rest in the end arteries of the neck where abscess formation occurs. This increase in pressure cuts off the circulation to the head and if not decompressed, the abscess ruptures into the hip joint. A combination of pyarthrosis and osteomyelitis produces sequestration of the entire femoral head (septic necrosis in this instance).

Slipped Capital Femoral Epiphysis

During the period of rapid adolescent growth, weakness occurs across the epiphyseal plates. In the proximal femur, slipping of the head on the neck may occur acutely and suddenly, as a result of injury. However, it usually occurs more slowly. Gradually, the head moves into a position of varus and posterior displacement producing a shortened, externally rotated leg. Avascular necrosis in the untreated case occurs from acute slips following trauma. Cases treated with open reduction and/or osteotomy of the neck have a high incidence of aseptic necrosis.

Treatment of Congenital Dislocated Hip

Avascular necrosis is never a complication of congenital dislocated hip. It is, however, a complication of its treatment. Reducing the hip under excess tension, thereby increasing intra-articular pressure, will lead to obliteration of circulation and avascular necrosis. When this occurs at a very early age, the head revascularizes without residual deformity or clinical sequelae. In an older child, a typical Perthes syndrome follows.

CONCLUSION

Many cases of avascular necrosis of the femoral head are truly idiopathic. These are known as Chandler's disease. The clinician should, however, remain aware of the diseases discussed here which may present in this manner.

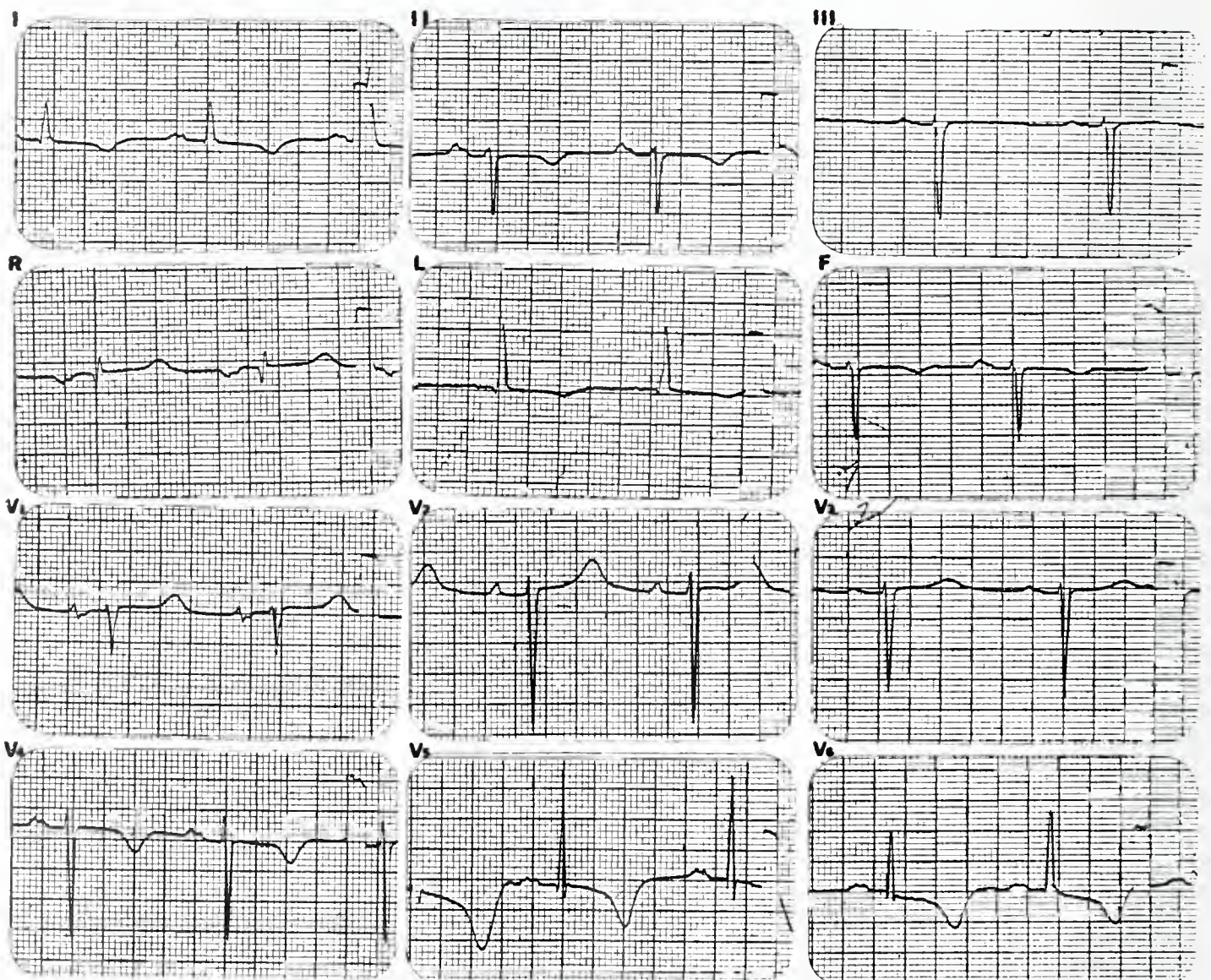




The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 78)

A 50-year-old male admitted to ER comatose.



ARTICLES FOR REVIEW:

Suarawojz, B., *Electrocardiographic Pattern of CVA*, J.A.M.A., 197:913, 1966.

Persons with CNS lesions, *Circulation*, 37:597, 1968.

Weintraub, B. M., and McHenry, L. C., Jr., *Cardiac Abnormalities in Subarachnoid Hemorrhage: A Resume*, *Stroke*, 5:384, 1974.



Childhood Lead Poisoning in Arkansas

Ruth R. Blackwood*

Childhood Lead Poisoning in Arkansas is no longer a suspect disease among children but a reality. This fact is proven by the clinical analysis of blood lead screens provided by the staff of the Blood Lead Screening Program, Arkansas Department of Health.

In a previous article in *The Journal of The Arkansas Medical Society* it was stated that blood lead poisoning causes needless death to many children and leaves many more with mental retardation, cerebral palsy, convulsive seizures, blindness, learning defects, behavioral disorders, kidney diseases, and other physical and mental handicaps.

It was noted also that childhood lead poisoning is a disease that health workers may not recognize because it has no distinctive clinical features. The symptoms of childhood lead poisoning are non-specific. Anemia, listlessness, excessive irritability, loss of appetite, abdominal pain, constipation — signs and symptoms that appear before obvious evidence of encephalopathy, such as vomiting and convulsions — can all be misinterpreted as indications of some other illness. Because children who suffer from lead poisoning are usually from lower income families, their anemia may be considered to be the results of inadequate nutrition; their listlessness and excessive irritability to be symptoms of indigestion or gastroenteritis. Even convulsions may be regarded as signs of epilepsy rather than as evidence of lead encephalopathy.

The original concept of operation of the Arkansas Blood Lead Program was to screen the entire state by collecting samples in conjunction with the Aid to Families with Dependent Chil-

dren Screening Program. This method of simultaneous sample collection at each of the eighty-seven health units was an effort to provide an overall statewide testing program, but proved to be unmanageable.

A revised concept was initiated during the middle of the 1975 calendar year. The staffing pattern was changed to permit door-to-door canvassing within the designated high risk areas. To further the objective of concentrating effort in areas of highest risk, the elevated lead level rate was calculated for each county. Fourteen counties had rates of five percent or higher and the health units continued to draw samples from children during AFDC screening. The other sixty-one counties were deferred at that time.

The method of classifying children with positive blood lead samples was revised to provide the greatest concentration of efforts on those children found to have the highest level of lead poisoning.

Screening tests for undue lead absorption and lead toxicity are essentially limited to various methods of blood lead determination and measurement of erythrocyte protoporphyrins. Blood lead may be determined by a macro method or by one of many micro methods.

The children tested may be divided into four major lead poisoning classes based on both blood lead and EP measurement (μ /100 ml whole blood). These classes indicate the degree of risk and, therefore, urgency of medical and environmental management.

	Class I	Class II	Class III	Class IV
	Normal	Minimally Elevated	Moderately Elevated	Extremely Elevated
Pb	≥ 29	30 - 49	50 - 79	≥ 80
EP	≥ 59	60 - 109	110 - 189	≥ 190

*Director, Division of Childhood Blood Lead Screening, Arkansas Department of Health, 4815 West Markham, Little Rock, Arkansas 72205.

Screening, pediatric management, and hazard control are equally important in caring for children at risk of lead poisoning. Pediatric management must include treating the child with undue lead absorption, in addition to following him until the risk of further damage is minimal. The following procedures are the policy of the Blood Lead Screening Program in handling the various classes:

Class IV children, regardless of the presence or absence of clinical symptoms or of other laboratory findings, are considered to be an unequivocal case of lead poisoning. Since the risk of acute lead encephalopathy is great, its onset unpredictable, and its course quick to strike, these children should be hospitalized immediately for evaluation and chelation therapy.

Reduction of lead intake is necessary for all children in Class IV, both as part of immediate therapy and as a part of the follow-up procedure. Children receiving chelation therapy should not be released from the hospital until lead hazards in their homes and elsewhere in their environment are controlled or suitable alternate housing is arranged.

Class III children who have compatible symptoms which cannot be explained otherwise or who have abnormal Amino levulinic acid dehydratase, urinary ALA, or urinary coproporphyrin levels should be considered as having lead poisoning and recognized as candidates for urgent inpatient medical management.

Children in Class III who are symptomatic or present laboratory evidence of subclinical lead poisoning should be treated and followed as Class IV children.

Class II children should be considered as having increased lead absorption if there is no evidence of iron deficiency.

Children in Class II generally will not require chelation therapy, but those who have EP levels in this range because of iron deficiency should obviously be treated for that condition. Otherwise, reduction of lead intake from all sources and careful monitoring should suffice.

Class II children without evidence of lead poisoning should be evaluated at three-month intervals after it is determined that they are no longer exposed to lead hazards.

Class I children require no further evaluation

except for routine rescreening until they reach their sixth birthday.

Pediatric management of children with lead poisoning must include appropriate treatment and adequate follow-up. Chelation therapy is indicated for some children with undue lead absorption. Though indiscriminate chelation is unwise due to the poorly explored potential hazards, withholding or delaying chelation therapy is also unwise when it is indicated.

After the initial screening and with the beginning of pediatric management the Arkansas program incorporates the Environmental inspection activities into the plan.

The Health Hazards Investigator inspects all dwellings where elevated cases are found. Class IV dwellings are inspected within 72 hours with reinspection in 14 days. Class III dwellings are inspected within 14 days with a dwelling reinspection within 30 days.

One of the greatest contributions the Arkansas Childhood Blood Lead Screening Program has made cannot be measured by statistical data. No longer is lead poisoning thought of as a text book disease by the medical profession or a far removed disease occurring only in the ghettos of larger cities by the public. Instead, it is a disease found in the counties of Arkansas among both city and rural populations.



ANSWER—Electrocardiogram of the Month

1. Sinus bradycardia — Rate 55
2. 1° AV block — PR .24
3. Abnormal left axis deviation 2° left anterior fascicular block — Axis —45°, initial QRS vector directed inferiorly and right ward; QRS duration less than .10, counterclockwise rotation of the QRS loop in the frontal plane.
4. Left atrial enlargement or intra-atrial conduction delay. P wave greater than .12, duration in lead II and 1 mm² negative deflection in V₁.
5. ST-T changes with markedly prolonged Q-T interval and abnormally broad and deeply inverted T waves most consistent with changes post cerebrovascular accident.



EDITORIAL

Research on Cancer

Alfred Kahn, Jr., M.D.

The differences between cancerous tissue and normal tissue is readily determinable by microscopy but the big problem is not to distinguish cancer cells but to try and determine why and how they exhibit autonomous, invasive behaviour. It has been realized for many years that the cancer-host symptom is a dynamic equilibrium putting the host's resistance against the cancer's invasiveness; both may vary from time to time thus accounting for the swings in the patient's condition. Many factors play a role in tipping the scale between recovery and worsening of clinical cancer. There does not seem to be a single entity that is the one basic factor.

Nicolson and Poste have studied cancer cells from a point of view of cell surface organization (*New England Journal of Medicine*, Vol. 295, p. 197, July 22, 1976). They state that alterations in the cell surface play a role in the cell change from normalcy to malignancy. Why should an altered cell surface membrane free it from the restraints the body imposes on normal cells — and permit unrestrained growth and spread. The authors demonstrate with text and diagrams the usual cell membranes which are composed of lipids, proteins, oligosaccharides and polysaccharides. They describe the cell membrane as a "2 dimension solution of a mosaic of integral membrane proteins embedded in a fluid lipid bilayer." This permits asymmetry allowing for segregation of substances to the inside or outside. It also allows lateral diffusion of chemicals. They point out too much mobility would let the cell lose its distinctive surface. Microtubules and microfilaments of the cytoplasm seem to be able to control the mobility of membrane proteins. Of importance is the fact that the microtubules and microfilaments have an abil-

ity to control movement and geographic location of cell surface receptors. Ligands can bind to surface receptors and cause clustering — antibodies are an example. Nicolson and Poste state that groups of receptors are called caps. Cap formation can be blocked or inhibited by chemicals that react with the cytoskeletal system. The cytoskeletal system plays a role in immune reactions and phagocytosis through its control of chemicals in the cell membranes. In cancer cells, it is said that the glycolipids of the cell surface show a decrease in total amount and in terminal saccharide residues. The authors have an excellent diagram which demonstrates some of the cell surface changes in cancer cells as altered transport, altered permeability, impaired intercellular communication, altered surface enzymes, changes in surface electric charge, shedding of surface components, modified adhesion, altered cytoskeletal control, et cetera. They further explain that the distinctive character of cancer cells may depend on the surface receptors and the cytoplasmic structures which control the receptors. Somehow cancer cells escape from the host's immune system despite the fact that they may be immunologically distinct. The surface of the cancer cells become insensitive to complement. For example, the tumor cells may "shed" surface chemicals as antigens or redistribute the surface chemicals to prevent antigenic detection. Tumor cells can move whereas normal cells tend to be inhibited from migration and this is a cell surface related quality. Nicolson and Poste also discuss the fact that no single keystone change in the cell surface membrane seems to account for all the altered behaviour of tumor cells. They speculate that proteases which can alter normal cells and

make them simulate tumor cells might in fact play a carcinogenetic role by altering the surface membrane geography of the affected cell.

Interesting clinical research on cancer cell continues. Graham-Pole, Ross, Ogg, and Cochran (*Lancet*, p. 1376, Vol. I for 1976, June 26, 1976) who have published their results on "Sensitization of Neuroblastoma Patients and Related and Unrelated Contacts to Neuroblastoma Extracts." The authors credit Hellstone in 1968 for discovering that lymphocytes from neuroblastoma patients impede the growth of neuroblastoma cells in vitro — as did the lymphocytes of close relatives. The thrust of the authors' work was to determine if neuroblastoma sensitization was a family characteristic or the result of contact — by testing non-family contacts. Graham-Pole, et al, studies eight neuroblastoma patients,

22 relatives, and a group of 49 non-related contacts. All tumor patients showed leukocyte migration inhibition (a measure of cellular immunity). Eleven of twenty-two relatives had a positive test. Of non-related contacts with close contact to the neuroblastoma patient, 66% showed leukocyte migration inhibition and 42% of the people with less contact showed a positive test. The study points out that despite the positive tests in contacts, contacts do not come down with the cancer as would be expected if exposure to a virus was enough to produce the disease.

Cancer remains an enigma. Until medicine develops a cure, the best that we can hope to do is to remove cancer related stimuli from human contact as tobacco, asbestos, radiation, chemicals, and other proved carcinogens.



MEDICINE IN THE



THE MONTH IN WASHINGTON

In the name of the "sunshine law," the government released the names of physicians, group and laboratories that did more than \$100,000 in Medicare business last year. It marked the first breach in the Medicare program's long-standing policy against disclosing such information.

The over-\$100,000 category included 409 physicians, 1,752 medical groups and 58 laboratories. This compared to 2,533 physicians, dentists, and pharmacies listed in the latest Medicaid report of more than \$100,000 intake last November.

The American Medical Association branded the releasing of the names as "only serving to badger a large segment of the profession and to establish guilt by innuendo." AMA Executive Vice President James Sammons, M.D., said "there is a basic dishonesty in the broadcast release of the names of individuals receiving Medicare payments." Dr. Sammons added that if "HEW thinks any physician on this list is guilty of

fraud HEW should say so. We will assist in any case where there is good reason to suspect wrong doing."

Dr. Sammons said the physicians are identified by HEW as individual recipients of Medicare funds, whereas the payments are often for services provided by many others as well. Many of the physicians listed are hospital-based radiologists, pathologists, anesthesiologists, he said. "We would also point out that these services are paid for at a rate set by Medicare and based on prevailing charges two years out of date."

Predictably, press reaction was uneven. Some press took the trouble to check before using the story. Most press did not. All too typical were headlines like this one, from the *Fort Lauderdale Sun-Sentinel*:

"HEW RELEASES NAMES OF DOCTORS ON MEDICARE GRAVY TRAIN."

Few stories bothered to explain that the figures cited are gross, not net; or that HEW's dollar

totals included not only payments to the physicians but payments made directly to the beneficiary where the beneficiary is responsible for paying the physician's bill.

Having gone through a similar experience in November of 1976, when the Social and Rehabilitation Service made public a list of physicians, dentists, pharmacies and laboratories that had received \$100,000 or more from Medicaid in 1975, the AMA immediately began checking for accuracy as many as possible of the names and amounts listed as paid to solo practitioners.

By the *Month In Washington* press time, some 166 physicians listed in solo practice were contacted in 30 states and the District of Columbia. Of this group:

- **82 were incorrectly listed as solo practitioners;
- **5 had incorrect amounts attributed paid to them;
- **22 reported both the solo designation and the amount were incorrect.

Some 65.7 percent of the information released on the 409 physicians listed as solo practitioners was therefore incorrect.

Complaints from individual physicians victimized by these inaccuracies poured in to the press. A roundup by the *Associated Press* pointed out some of the injustices done by the HEW release in which two out of three solo practitioners were inaccurately listed.

The *Washington Star* took editorial note of HEW's inaccuracies under the heading: "A SLOPPY PIECE OF WORK."

The physicians contacted by the AMA and state medical societies reported harassment by angry patients, crank telephone calls, children taunted at school as the children of a crook, anonymous threats, attacks by colleagues, and continuing embarrassment within their communities.

A number of Congressmen have inserted remarks into the *Congressional Record* with respect to HEW's disgraceful performance.

HEW Secretary Joseph A. Califano has privately admitted dismay and has publicly stated that a corrected list will be forthcoming shortly.

* * * *

The AMA has told the government that fraud and abuse are different problems deserving different treatment.

In a letter to HEW Secretary Califano, the AMA said:

"Frankly, we find it difficult to equate "abuse" of Medicare and Medicaid programs with some legally definable criminal action. Indeed, it is unfortunate that "fraud and abuse" have been linked so often in public discussion and departmental releases that the clearly criminal aspects of "fraud" have migrated to "abuse" as well."

AMA Executive Vice President James Sammons, M.D., said "fraud" is a reasonably well-defined legal concept — misrepresentation with the intent to obtain money or other goods to which one is not entitled — and has always been clearly subject to legal penalties. Dr. Sammons said examples include billing for services not rendered, etc. "The medical profession has always opposed such practices by its members and urges prosecution of those charged with fraud."

However, he wrote, abuse is a much more ambiguous term. A "fact sheet" on Medicaid fraud and abuse issued by the Social and Rehabilitation Service states that a provider is "abusing" the program if he files claims and receives payment for services "that are not allowed by federal or state Medicaid laws or regulations." If "abuse" of a program by a provider implies some guilt on his part, this definition is clearly inadequate, since it leaves out any reference to the provider's knowledge of the exclusion, noted Dr. Sammons.

The AMA said the decision as to appropriateness of care "is a professional decision, not a legal one, and we would strongly urge that no attempt be made to bring it within the courtroom, along with prosecution of fraud." Legitimacy and appropriateness of treatment should first be explored by the review committees already established for this purpose at the community level, said Dr. Sammons. "When they agree that the treatment is, indeed, inappropriate and excessive, efforts should be made by his peers to persuade the erring physician to follow a more appropriate course of treatment, but the punitive action should be limited to those already authorized by law — non-reimbursement of excess care and, where the pattern of over-use or over-treatment continues, exclusion of the individual from the program."

He concluded, "We believe that this is both appropriate and sufficient in the way of penalty for actions which the physician himself may

consider honest and non-culpable, and we would therefore urge that, while fraud should indeed be prosecuted to the extent of the law, "abuse," in this sense, should be handled within the framework of Peer Review and program administration controls."

* * * *

A bill aimed at rooting out fraud and abuse in federal health programs has started down the legislative path in Congress. The AMA applauded the objective, but said the bill is so broadly drawn that it allows investigation of "the actions of almost every practicing physician in the United States."

The minority of physicians who abuse Medicare and Medicaid should be brought to justice, the AMA said, but "justice is not served if all practitioners are subjected to harassment and restraint so that a few malefactors may be apprehended."

Edgar T. Beddingfield, M.D., Chairman of the AMA's Council on Legislation, testified before an unusual joint hearing by the health subcommittees of the House Ways and Means and House Commerce Committees. Ways and Means is responsible for Medicare; Commerce, for Medicaid.

To the extent that the legislation was aimed at the "Medicaid mill" it has "far exceeded the mark," said Dr. Beddingfield. "Since this bill has been characterized as the 'Medicaid mill' Fraud and Abuse Bill, practically all group practices could be stigmatized because of the broad application of its provisions."

The broad approach of the bill is "aimed at a large proportion of all practicing physicians, casting its stigma of impropriety upon the tens of thousands of physicians who fall within its purview," the AMA witness said. "Virtually all group practices in the United States would be subjected to the same requirements as the so-called 'Medicaid mill.'"

All groups of two or more practitioners would be subject to the extensive disclosure of records provisions, Dr. Beddingfield noted, adding that all practicing physicians who render Medicare and Medicaid services would be subject to review by Professional Standards Review Organizations (PSRO).

Continuing his criticism of the legislation, Dr. Beddingfield said it "endangers the confidentiality of patient records, and certain provisions

cannot be justified as needed or even as a wise tool to combat fraud."

* * * *

To counter charges that his Department has been lax in cracking down on fraud and abuse in health programs, HEW Secretary Califano has called in the FBI.

He said FBI agents will work "full blast" on Medicare and Medicaid misdoings until HEW's own office of investigations is "up to full speed."

Califano made the statements following a report by the Senate Special Committee on Aging contending that illegal kickbacks are "rampant" in the Medicaid program. Summarizing testimony given the Committee last year, the report said nursing homes are the chief offenders, but "increasing evidence points to hospitals, medical practitioners, clinical laboratories and other suppliers."

Not making Califano's life any easier was an allegation by John Walsh, former director of HEW's Office of Investigations, that the new HEW Secretary and his Under-Secretary Designate, Hale Champion, tried to impede an investigation of fraud in a San Jose, California, Medicaid project. Walsh, who resigned his post, said he was told he had to clear the investigation with his superiors. Califano and Champion angrily denied they were in any way attempting to influence the course of the probe.

"I did not in any way hinder or impede our fraud investigation — nor did Mr. Champion — in California or elsewhere," Califano said on NBC's Meet the Press program. "Everything that I've done in this area has been designed to make these investigations go faster and better."

* * * *

The weight of scientific evidence points to a relationship between television violence and increased aggressive behavior in some youthful viewers, the AMA has told Congress.

The AMA called on the TV industry to recognize its social responsibilities, to reduce the amount of violence and to respond with greater sensitivity and diversity in its programming policies. "That television violence represents a serious issue in the mind of the public is a consideration the broadcasting industry can no longer ignore," declared Robert Stubblefield, M.D., consultant on mental health matters to the AMA.

Testifying before the House Commerce Sub-

committee on Communications, Dr. Stubblefield said "television could teach many positive lessons and behavior that would provide alternatives to the violent and anti-social problem-solving so often conveyed in today's programming."

Violence now is a prevalent theme on TV, said the AMA spokesman. He noted earlier testimony of George Gerbner, PhD, that there was more violence during the fall season programming than at any other time in the past decade.

Said Dr. Stubblefield: "These results are especially alarming since just three years ago network executives assured another Congressional subcommittee that efforts were well under way to reduce the amount of gratuitous violence."

The AMA believes that the television medium "has not even begun to realize its potential" in "prosocial programming," he said.

"In my opinion," Stubblefield added, "the television industry cannot have it both ways—claiming that they merely entertain, facilitate abreaction and ventilation of pent-up emotions, yet denying that they shape and influence behavior. Blatantly stated, shaping and influencing behavior that is stimulating the sale of products is precisely one of the major uses of television."

* * * *

The new Commissioner of the Food and Drug Administration is Donald Kennedy, PhD, a neurophysiologist from Stanford University. Dr. Kennedy is the first non-physician to head the agency in 11 years but he doesn't place much significance in that fact.

"I've been active in the community of neurophysiologists for some time. About half my colleagues who are good scientists have M.D.s, the other half have PhDs. If I didn't know something about their personal histories I wouldn't know, from their ability to do what they do, which was which. In other words, you can be a good scientist with either degree. Furthermore, I don't think an M.D. confers you with an automatic set of prejudices about regulation either."

HEW Secretary Califano praised Dr. Kennedy in announcing the appointment and said "it is imperative that the FDA act only in the public interest and with much greater dispatch than it has in the recent past."

Responding to a query on FDA's legendary speed Dr. Kennedy said, "I think anyone would like to see a larger amount of dispatch per unit

of protection. Obviously, the first thing one wants to look at in any agency is how it is going to pursue its fixed responsibilities with great alacrity. The classical regulatory dilemma is that on the one hand there is the wish to minimize the public cost of too speedy introduction. On the other hand you'd like to be able to figure the opportunity-cost that you're paying in delayed innovation. It's no trick to describe the problem. The trick is to measure it for any given case."

* * * *

Christopher C. Fordham, M.D., Dean of the University of North Carolina Medical School, is the choice of the Carter Administration as Assistant Secretary for Health at HEW.

The naming of the federal government's top health official had been the subject of much speculation and interest over the past weeks. The selection of the Assistant Secretary for Health (ASH) in a new Administration is considered an important guide to the type of health policies HEW will pursue.

Dr. Fordham, 49, is a board certified internist and a member of the AMA. He received his medical degree from Harvard University Medical School. He is well-known in North Carolina and is regarded generally as a moderate on socioeconomic medical issues.

* * * *

Thomas D. Morris, a member of the senior staff of the Brookings Institution, was named to the newly created post of Inspector General of HEW.

The job was established by Congress last year to oversee a \$25 million program, to find fraud and abuse in various HEW programs, especially Medicaid. Morris will have a staff of 1,000 auditors and 100 investigators.

Morris, 63, was Assistant Secretary of Defense in charge of the cost reduction program and procurement operations from 1961 to 1968 and was Assistant Comptroller General from 1970 to 1975. For the past year, he has been a senior staff member of the Brookings Institution in Washington.

Morris will focus initially on the broad area of health-care services, including alleged widespread fraud in the Medicare and Medicaid programs, and the student loan programs.

Morris will be responsible both to the HEW Secretary and to Congress. The importance of

the post was underlined by having the announcement of Morris' appointment come from the White House rather than the Secretary's office.

* * * *

MEDICAL HISTORY PUBLISHED

"Physicians and Medicine — Crawford and Sebastian Counties, Arkansas, 1817-1976," a documented biographical medical history, is currently in printing. Anticipated release date is December 1977. The Auxiliary to the Sebastian County Medical Society compiled the booklet and publication is being underwritten by the Sebastian County Medical Society.

The book will contain documented biographical data on over 1,500 physicians who had some connection with medical practice in Crawford and Sebastian counties. It will include military men whose records were available; medical legislation; development of medical practice and organized medicine; history of the medical services and the history of the two county medical societies.

Orders for the book should be forwarded to Mrs. Art B. Martin, 2121 Wolfe Lane, Fort Smith, Arkansas 72901. Pre-publication price will be \$15.00, plus \$1.00 postage and handling costs. After its release the anticipated price will then be \$20.00, plus cost of postage and handling. Initial printing will be limited, with the number of copies depending primarily on the pre-publication sales.

* * * *

MUSCULAR DYSTROPHY RESEARCH

A new research laboratory for the study of the effects of different forms of muscular dystrophy on muscle fiber is being established in the North Little Rock Veterans Administration Hospital. Dr. Carlos Araoz, a specialist in pathology of neuromuscular disease, will be the director of the laboratory. The Arkansas chapter of the Muscular Dystrophy Association recently contributed \$5,000 toward the establishment of the laboratory.



THINGS TO COME

SEMINAR FOR "PHYSICIANS AND THEIR FAMILIES"

The Menninger Foundation is sponsoring a seminar for "Physicians and Their Families" August 14-19, 1977, in Estes Park, Colorado. This seminar has been specially designed to reacquaint the physician with family dynamics and the stages families go through in their growth. Accommodations will be with the YMCA Camp, Estes Park, Colorado, and reservations should be made directly with them.

The tuition fee for the continuing education program is \$250.00 per family. This continuing medical education offering meets the criteria for 25 credit hours in Category I of the Physician's Recognition Award of the American Medical Association and has been approved for 25 prescribed hours of credit by the American Academy of

Family Physicians. Sessions will be held during the hours of 9:00 a.m. to 12 noon and 7:30-10:00 p.m.

Deadline for registration and fee payment to the Menninger Foundation is August 1, 1977. Contact June Housholder, Division of Continuing Education, The Menninger Foundation, P. O. Box 829, Topeka, Kansas 66601, or call 913-234-9566, extension 3685. The deadline for camp reservations is July 17, 1977, and you should contact directly the YMCA Camp of the Rockies, Estes Park Center, Association Camp, Colorado 80511.

THE ARKANSAS ACADEMY OF FAMILY PHYSICIANS 30th ANNUAL SCIENTIFIC ASSEMBLY July 19-21, 1977

Little Rock Convention Center
TUESDAY, JULY 19, 1977

12:00 noon Board of Directors' Luncheon and Meeting — Camelot Inn

6:30 p.m. Cocktail Party — Host: Blue Cross-Blue Shield — Camelot Inn

WEDNESDAY, JULY 20, 1977

8:00 a.m. "Use, Abuse, and Therapeutic Indications for Estrogens" — Kermit

Krantz, M.D., University of Kansas Medical Center, Kansas City, Kansas

- 9:30 a.m. Visit Exhibits
 10:00 a.m. "Basic EKG'S" — Peter Carl Block, M.D., Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts
 12:00 noon Business Luncheon — Convention Center Exhibit Area
 1:00 p.m. Visit Exhibits
 1:30 p.m. "Advanced EKG'S" — Peter Carl Block, M.D.
 3:30 p.m. Visit Exhibits
 3:45 p.m. "Management of Acute Poisoning and Overdose" — Barry H. Rumach, M.D., Rocky Mountain Poison Center, Denver, Colorado
 7:00 p.m. Cocktail Party — Courtesy, Marion Laboratories — Camelot Inn

THURSDAY, JULY 21, 1977

- 7:00 a.m. Razorback Breakfast — Courtesy, Pfizer Laboratories — Guest Speaker: Coach Eddie Sutton, Head Basketball Coach and Assistant Athletic Director, University of Arkansas
 8:00 a.m. "Hypertension — Current Concepts of Therapy" — Barry J. Materson, M.D., University of Miami, Miami, Florida
 9:30 a.m. Visit Exhibits
 10:00 a.m. "Newer Techniques in Monitoring Critically Ill Patient" and "Newer Concepts in the Management of Shock" — Robert J. Baker, M.D., The Abraham Lincoln School of Medicine, Chicago, Illinois
 12:00 noon Installation of Officers' Luncheon — Convention Center Exhibit Area — Leslie B. Huffman, M.D., President of the American Academy of Family Physicians, Presiding Officer
 1:15 p.m. Visit Exhibits
 1:30 p.m. "Fluid and Electrolyte Management in Critically Ill Patients" and "Blood Transfusional Therapy; Transfusion Reaction" — Robert J. Baker, M.D.
 3:30 p.m. "Family Physician — Ideal Sex Therapist" — Domeena C. Renshaw, M.D., Loyola University

Stritch School of Medicine, Maywood, Illinois

* * * * *

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HEMPSTEAD COUNTY

The Hempstead County Medical Auxiliary hosted a community coffee to honor Doctor's Day, March 30. Doctors' wives served at the coffee. They were: Mrs. George H. Wright, Mrs. L. O. Harris, Mrs. C. Lynn Harris, Mrs. Forney Holt, and Mrs. J. W. Branch, Sr.



PERSONAL AND NEWS ITEMS

New Clinic In Rogers

The Rogers Clinic for Women and Children moved into a new building on West Poplar Street. Dr. Harry Harmon founded the clinic three years ago. He has been joined by Dr. James P. Elkins, obstetrics and gynecology, and Dr. Barry Allen, pediatrics.

Dr. Blaylock Speaks

Dr. Jerry Blaylock, Jonesboro psychiatrist, recently spoke to the United Ostomy Association on the psychiatric aspects of adjustments necessary for the ostomy patient.

Dr. Brown To DeQueen

Dr. O. D. Brown is now associated with the DeQueen Clinic. He was previously on staff of the Dickinson Clinic in DeQueen. The total physician staff at the DeQueen Clinic is now twelve.

Dr. Bruce Appointed

Dr. Thomas A. Bruce has been named chairman of the Association of American Medical College's Southern Council of Deans. Dr. Bruce will serve in this capacity for one year.

Dr. Balch Has Physician's Associate

Ralph Obermiller, of Stroud, Oklahoma, recently became physician's associate to Dr. J. I. Balch of DeQueen.

Mr. Obermiller received his training at the University of Oklahoma Medical School.

New Colony Physician

The Arkansas Children's Colony at Arkadelphia has a new colony physician. Dr. Vernon Toombs who has been with the Colony since 1970, has retired from active practice. Dr. John Frandolig, formerly with the Reynolds Metals Company at Bauxite, replaces Dr. Toombs as the Colony physician.

Dr. Bailey Speaks

Dr. H. A. "Ted" Bailey, Jr., of Little Rock recently addressed the Arkansas Chapter of the Osteogenesis Imperfecta Foundation. Dr. Bailey discussed the diagnosis and treatment of hearing loss associated with osteogenesis imperfecta.

Dr. Ashley Presents Program

Dr. J. D. Ashley demonstrated the latest methods of cardiopulmonary resuscitation for Newport Rotarians at a recent meeting.

Dr. Stroud Opens New Clinic

A new clinic in Conway was opened in May by Dr. Doug Stroud. Dr. Stroud practiced in Morrilton prior to moving to Conway. Dr. Joe Abrams of Little Rock will join Dr. Stroud in July.

Dr. Evans Returns From Europe

Dr. Clifford Evans, Morrilton family practitioner, recently accompanied a group of American Country Music artists on a tour of England. The performers were representing the United States in the ninth annual International Festival of Country Music.

Lake City Physician

Dr. Robert A. Robbins will begin practice in Lake City in July. He is a graduate of the University of Tennessee.

New Physician For Mountain Home

Three new physicians are in practice in Mountain Home. Dr. Richard Burnett is a general practitioner associated with the Saltzman-Guenther Clinic. Dr. Fred Turner is a specialist in gastroenterology and Dr. Francis Brian, Jr., specializes in internal medicine and emergency medicine. Drs. Turner and Brian will be practicing in the Baxter General Hospital.

Dr. Taylor Speaks

Dr. Charles Taylor, general practitioner from Batesville, spoke recently to students at the Batesville Junior High School. Dr. Taylor discussed cardiovascular diseases.

Dr. Wright Given Recognition

Dr. Harold B. Wright, Waldron general practitioner, recently received a plaque in appreciation from the Arkansas Veterans Service Club and the V.F.W. Post 8245 of Waldron.

Dr. Compton Member Of Committee

Dr. Neil Compton of Bentonville, a member of the National Park Service's Southwest Regional Advisory Committee, recently participated in a meeting at Hot Springs. The Committee advises the National Park Service and facilitates an exchange of information between the Department of the Interior's National Park Service and the public.

Diplomates Of Family Practice

The following physicians have recently been named diplomates of the American Board of Family Practice: Drs. James M. Carter, Russellville; Ivan L. Frye, Little Rock; Edward P. Ham-

mons, Forrest City; George Queen, Hot Springs; John D. Wise, Malvern; and Sandra S. Young, Russellville.

Dr. Rodman Honored

The citizens of the Leachville-Manila communities honored Dr. Tasker N. Rodman early in April with a surprise party. Dr. Rodman has been a general practitioner in the Leachville area for over thirty years.

Dr. Miller Diplomat

Dr. Charles H. Miller of Fayetteville Surgical Associates recently was named a diplomate of the American Board of Thoracic Surgery.



NEW MEMBERS

H. WADE WESTBROOK

Crittenden County Medical Society has accepted into membership Dr. H. Wade Westbrook of 200 South Rhodes, West Memphis. Dr. Westbrook was born in Columbus, Mississippi, and received his medical education at the University of Tennessee College of Medicine. He served both his internship and resident training at the City of Memphis Hospitals.

Dr. Westbrook specializes in obstetrics-gynecology and is board eligible.

ROBERT A. GULLETT, JR.

Dr. Robert R. Gullett, Jr., 1724 Doctors Drive in Pine Bluff, is a new member of the Jefferson County Medical Society. He is a board-certified Orthopaedic Surgeon. Dr. Gullett is a graduate of Louisiana State University School of Medicine

in New Orleans and he completed his internship training at the Confederate Memorial Hospital at Shreveport. Dr. Gullett's residency was also at the Confederate Memorial Medical Center in Shreveport and the Shriners Hospital for Crippled Children. He has served in the United States Army for two years. He was with the Fort Carson Army Hospital in Colorado Springs, Colorado, prior to coming to Pine Bluff.

WILLIAM J. ALEXANDER, III

The Independence County Medical Society has accepted Dr. William J. Alexander, III, into its membership. Dr. Alexander is a native Arkansan who was graduated from the University of Arkansas College of Medicine. He spent his internship at the University of Alabama.

Dr. Alexander is a Family Practitioner with offices in the Medical Arts Building at 17th and Harrison Streets in Batesville.

JUAN E. CAIGNET

The Pulaski County Medical Society has accepted into membership Dr. Juan E. Caignet. Dr. Caignet is a board-certified Radiologist at the Veterans Administration Hospital in Little Rock. He was born in Cuba and received his M.D. degree in 1943 from the University of Havana, Cuba. He served internships at the University of Havana Hospital and the Los Angeles Hospital in Santiago, Cuba.

Dr. Caignet was in residency training at the Institute De Radiologia "P. L. Farinas," Havana, Cuba, 1945-1947; the University Hospital in Havana, Cuba, for a year, and was in post-graduate training at the Peter Bent Brigham Hospital in Boston, Massachusetts, for a year.

Dr. Caignet is an Associate Professor of Radiology at the University of Arkansas College of Medicine. Prior to coming to Arkansas, Dr. Caignet was in private practice in Tampa, Florida.

F. A. BENNETT, JR.

Dr. F. A. Bennett, Jr., is a new member of the Sebastian County Medical Society. He is an Internist and Cardiologist with Cooper Clinic in Fort Smith.

Dr. Bennett is a native of Magnolia, Arkansas, and received his medical degree from the University of Arkansas College of Medicine in 1971. He continued on at the University of Arkansas Hospital for his internship training.

KEITH E. ASHCRAFT

Pulaski County has extended membership to Dr. Keith E. Ashcraft, resident in Anesthesiology at the University of Arkansas Medical Center. He is a native Arkansan and received his M.D. degree from the University of Arkansas College of Medicine in 1974.

JAMES E. McDONALD, II

Dr. James E. McDonald, II, has been accepted into the membership of the Washington County Medical Society. He is an Ophthalmologist with offices at 461 East Township Road in Fayetteville. He received his B.S. and M.D. degrees from the University of Arkansas. Dr. McDonald interned at the University of Alabama and then returned to the University of Arkansas for a residency in Ophthalmology, which he completed in 1974. He served in the United States Air Force from 1974 to 1976.

Dr. McDonald is board certified in Ophthalmology.



OBITUARY

WILLIAM C. LANGSTON

William Cleaver Langston of Little Rock died April 19th, at the age of 87. He was born January 3, 1890, in Newberry County, South Carolina, the son of a Baptist minister.

Dr. Langston received his A.B. degree from Furman University, Greenville, South Carolina, in 1911 and received his master of science degree from Middlebury College in 1917 where he was a Fellow in Biology.

He was an instructor in physics and biology at Gordon Military Institute, Barnesville, Georgia, from 1919 to 1921. He taught anatomy the summer of 1929 at the University of Chicago.

Dr. Langston received his medical degree in 1929 from Iowa State University School of Medicine which he attended part-time from 1926 to

1929 while he served as a demonstrator in anatomy. He was an instructor in anatomy at Iowa State from 1929 to 1930. He completed his first and second years of medical school at the University of Alabama while serving as instructor, assistant professor and associate professor from 1920 to 1926.

Dr. Langston was active in the planning and development of the University of Arkansas Medical Center and was the assistant dean from 1946 to 1947 and acting dean from 1948 to 1950. He retired from the University of Arkansas College of Medicine in 1957.

Dr. Langston was the author of "Differential Organology," "Laboratory Manual and Workbook in Medical Embryology," plus numerous research publications in the fields of nutrition, endocrinology and hematology. He was also the co-discoverer of vitamin M.

Dr. Langston was listed in "American Men of Science," "Who's Who Among Physicians and Surgeons," "Who's Who in Arkansas," and "Who's Who in American Education."

Dr. Langston's son, Dr. Robert H. Langston, practices in Harrison.

RESOLUTIONS



WHEREAS, the members of the Pulaski County Medical Society are deeply saddened by the recent death of W. C. Langston, M.D., and

WHEREAS, for many years, Dr. Langston held important positions in the field of medical education and his influence on countless Arkansas physicians will continue to be felt throughout their careers, and

WHEREAS, Dr. Langston's contributions to the medical profession, to the University of Ar-

kansas College of Medicine and to the community are immeasurable;

BE IT THEREFORE RESOLVED: THAT, this resolution be adopted and made a part of the permanent records of this Society, and

THAT, a copy of this resolution be sent to Dr. Langston's family as a token of our sincere appreciation of his life; and

THAT, a copy be sent to the Journal of the Arkansas Medical Society for publication.

By Direction of the Memorials Committee.

(Signed) T. Duel Brown, M.D., Chairman
Robert Watson, M.D.
Henry Hollenberg, M.D.

Adopted: Executive Committee
April 20, 1977



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Voluntary political contributions for Ark-Pac and Am-Pac (the American Medical Political Action Committee) may be sent to Ark-Pac, Post Office Box 1208, Fort Smith, Arkansas 72902. \$35 is suggested for family membership (physician and spouse) and \$25 for an individual. Sustaining membership is \$99.

If your practice is incorporated, Ark-Pac and Am-Pac voluntary political contributions should be written on a PERSONAL CHECK. Contributions are not limited to the suggested amount. Neither the AMA nor the Arkansas Medical Society will favor or disadvantage anyone based upon the amounts of or failure to make PAC contributions. Copies of Ark-Pac and Am-Pac reports are filed with the Federal Election Commission and are available for purchase from the Federal Election Commission, Washington, D. C. Contributions are subject to the limitations of FEC Regulations, Sections 110.1, 110.2 and 110.5. (Federal regulations require this notice.)

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July, 1977

Vol. 74 No. 2

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Another important aspect of the clinical character of Valium is safety. Though drowsiness, ataxia and fatigue are possible, these and more serious side effects are rarely a problem. Of course, as with all CNS-acting drugs, patients taking Valium should be cautioned against driving, operating dangerous machinery or the simultaneous ingestion of alcohol.

Unquestionably, many psychotherapeutic agents, including other benzodiazepines, have antianxiety effects. But one fact remains: you get a certain kind of patient response with Valium. It's a response you want. A response you know. A response you trust as part of your overall management of anxiety and psychic tension.

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.



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The Evaluation and Management of Patients with Urinary Tract Calculous Disease

Part II: Surgical and Medical Management

Nabil K. Bissada, M.D.,* Alex E. Finkbeiner, M.D.* and John F. Redman, M.D.*

Information derived from systematic evaluation of patients with urolithiasis, as outlined in Part I of this discussion, is essential for a rational planning of treatment. Factors such as the site, size and composition of the stone; the degree of obstruction caused by the stone; the condition of the urinary tract; the presence or absence of infection and the offending organisms, the physical and social condition of the patient as well as the severity and duration of symptoms are all important. This information will influence the choice and extent of surgical treatment. The metabolic activity of the stone disease will influence the choice and extent of medical management.

MANAGEMENT OF THE PATIENT WITH URETERAL COLIC

Careful history and physical examination, urinalysis and a plain abdominal radiogram usually establish a presumptive diagnosis of a ureteral stone. The excretory urogram is invaluable. However, because these patients usually have severe pain, the urogram should be tailored. Once evidence of ureteral obstruction is demonstrated on early films (usually within 10-15 minutes after injection), pain medications should be started. Our preference is to use morphine sulphate 8 mg intravenously once the diagnosis of ureteral stone colic is established. The dose may be repeated in 10 minutes if relief of pain has not been obtained. Pain can be controlled thereafter by subcutaneous morphine. Later less potent drugs can be used and even oral medications may be effective as the pain becomes less severe.

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SURGICAL MANAGEMENT OF UROLITHIASIS

As stated previously, management should be individualized. In general, surgical removal of calculi is indicated if the stone is obstructive or is causing severe symptoms, progressive renal damage or persistent infection. Large stones that are not likely to pass spontaneously are better removed surgically. In the presence of non-functioning, infected kidney, nephrectomy may be indicated to avoid eventual spread of infection to the contralateral kidney.

Removal of renal stones can be done through an incision in the renal pelvis (pyelotomy) or through the renal parenchyma (nephrotomy) depending on the size, shape and location of the stone as well as the renal anatomy. Stones in the upper two-thirds of the ureter are removed through a ureterotomy incision. Stones in the lower third ureter may be removed either by endoscopic manipulations or through a ureterotomy depending on the condition of the urinary tract and the size of the stone. Likewise, stones in the urinary bladder (Fig. 6) may be removed

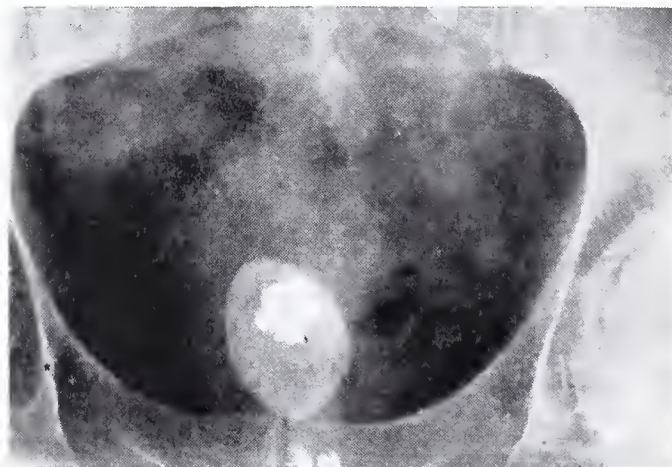


Figure 6.
Plain radiogram showing a bladder calculous that has formed around a foreign body.

by an open cystotomy or by instrumental manipulation (litholapaxy) depending on the characters of the stone and the condition of the lower urinary tract.

A difficult urological problem is the management of the staghorn calculi. These calculi are often friable and/or multiple (Fig. 7). Complete surgical removal is a real challenge. Furthermore, persistence of infection with recurrent stone formation is frequent. Further therapeutic considerations will be discussed under medical management.

SURGICAL EMERGENCIES DUE TO UROLITHIASIS

Two grave conditions may result from obstruction of the upper urinary tract by stones:

1. Calculous anuria may result from either bilateral renal or ureteral obstruction by a stone or obstruction of one kidney when the other kidney is absent or diseased. There is usually a history of pain or colic followed by anuria although sometimes a history of pain may be absent.

2. Gram negative sepsis may occur secondary to infection of the obstructed kidney. Occasionally instrumentation predisposes to infection.

In either of these two life-threatening conditions, ureteral catheterization should be attempted

to bypass and drain the obstructed kidney. If successful, the immediate emergency is relieved. This allows time to evaluate the patient and plan any further management. Other measures to combat sepsis are axiomatic.

Another unusual surgical emergency that may result from calculi is bladder outlet or urethral obstruction by a stone (Fig. 8). Management is either instrumental removal of the stone or open surgical intervention to remove the stone and drain the bladder.

MEDICAL MANAGEMENT OF UROLITHIASIS

The goal of treatment is to prevent recurrence; and in some instances to dissolve an existing calculus. The general principles of medical management of urolithiasis are the maintenance of large urine volume, irradiation of infection, correction of obstructing lesions and correction of underlying metabolic abnormalities. Treatment should be tailored to the individual patient. The metabolic activity, the etiology and the composition of the calculus serve as guidelines for medical treatment.

A. Idiopathic calcium oxalate calculi: Patients with idiopathic calcium oxalate calculi constitute the largest group requiring preventive therapy. The patient who forms a small calculus every one to two years and passes these with little difficulty may be best managed by maintaining a high urine output. In addition he should avoid a large intake of dairy products to reduce calciuria and to avoid oxalate rich dietary items such as fruit juices, tea, rhubarb, spinach, asparagus, chocolate and vitamin C.

For patients with multiple calcium oxalate calculi, the addition of one of several regimens is advocated:



Figure 7.

Plain radiogram demonstrating friable branched (staghorn) calculous with several separate pieces.

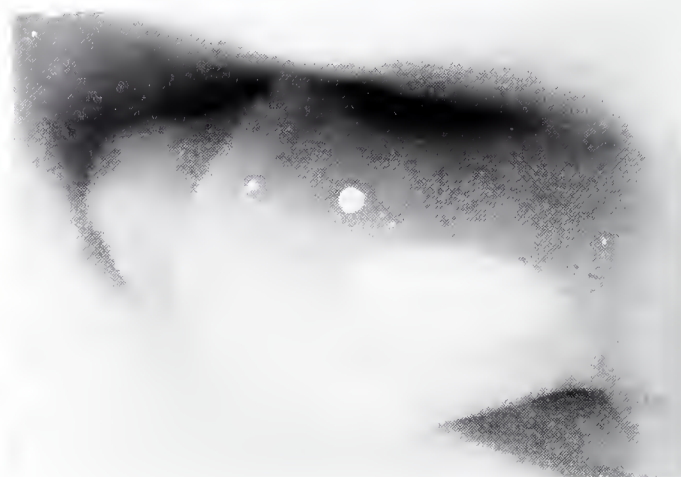


Figure 8.

Plain radiogram of penis of an elderly male who presented with acute urinary retention and a palpable induration in the urethra showing a relatively large urethral calculus.

1. Phosphate therapy: This was advocated as a means of increasing the urinary excretion of inhibitors of crystal formation. For the average male patient 1.5 gm daily of neutral orthophosphate phosphorus* in three divided doses are usually adequate. Women require somewhat smaller doses. Patients are re-evaluated in three to six months. If adequate control is not accomplished by that time, the amount of phosphorus may be increased by increments of 250-500 mg per day. Sometimes it is necessary to use dibasic alkaline phosphates as the source of phosphorus. The alkaline salts presumably augment urinary citrates and are more effective than the neutral mixture of phosphates.

The principal side effect is diarrhea, which usually subsides in the first few weeks. Otherwise concomitant temporary use of an antidiarrheal medication has been effective. Patients with peptic ulcer disease or those with chronic intestinal disorders ordinarily cannot tolerate the dosage of orthophosphates required to control calculous formation.

2. Hydrochlorothiazide therapy: Hypercalciuria is present in a significant number of patients with idiopathic calcium oxalate calculi. Hydrochlorothiazide decreases urinary calcium and to a moderate degree increases urinary magnesium, changes that favor lessened formation and deposition of calcium-containing crystals. This treatment may also cause reduction of urinary oxalate excretion. The usual dose is 100 mg daily in two divided doses but an occasional patient may require 150 mg daily.

Hypokalemia occurs commonly with treatment and some degree of asthenia is a frequent complaint. Other side effects of thiazide therapy are hyperuricemia and reduced carbohydrate tolerance. An increase in serum calcium concentration is transient in most patients. However, a significant increase may occur in patients with hyperparathyroidism or other overactive bone resorptive processes. This drug is therefore contraindicated in patients with hyperparathyroidism.

3. Allopurinol: Many patients with calcium oxalate lithiasis have abnormalities in uric acid metabolism. Allopurinol is a xanthine oxidase inhibitor and is useful in reducing serum and urine uric acid concentration. It may be effective in reducing calculous formation in hyperuricemic patients forming calcium oxalate, uric acid or mixed oxalate and uric acid stones. The

recommended dose is 200 mg daily. It may be used together with one of the other regimens such as with phosphates.

4. Other forms of therapy: Magnesium oxide-pyridoxine therapy is felt to be generally less effective than the phosphate or the chlorthiazide regimens. Experience with other forms of therapy has either been limited or unsatisfactory.

B. Urolithiasis associated with intestinal diseases: There is a definite increased incidence of calculi associated with chronic intestinal disorders or extensive small bowel resection. Two distinct forms of stone disease occur. Calcium oxalate stones account for 60-80% of the calculi found in those patients. This results from acquired hyperoxaluria and associated disturbances of bile acid metabolism. Forced fluids, avoiding oxalate-rich drinks (fruit juices and tea) and foods, and the use of cholestyramine are usually effective.

Uric acid lithiasis is less common and is associated with the highly concentrated acidic urine that results from the large losses of bicarbonate and gastrointestinal fluids. Allopurinol combined with high fluid intake and alkalinization is the treatment of choice.

C. Uric Acid Lithiasis: Adequate treatment is more easily accomplished in patients with uric acid lithiasis than is in other forms of urolithiasis. Dissolution of uric acid stones can be accomplished in a few weeks by maintaining high urine output; urinary alkalinization to maintain urinary pH at 7.0 or above; restriction of protein intake; and the use of allopurinol. After the calculus has been dissolved, prevention of recurrence can be accomplished by high fluid intake and moderate alkalinization.

D. Cystine Lithiasis: Patients with cystinuria, who form cystine stones, present a similar but more difficult therapeutic problem than those with uric acid stones. Dissolution of small, non-obstructing cystine stones and prevention of recurrence can be accomplished by maintaining a high urine volume and urine alkalinization to maintain urine pH above 7.5. D-penicillamine may be added if other modalities fail. D-penicillamine is expensive and has frequent side effects and supplemental vitamin B₆ is essential. Other better tolerated compounds that reduce cystinuria are being evaluated and may be available soon.

E. Infected Urinary Lithiasis: This is one of the most difficult of stone diseases to treat and

*Neutra-phos, Willen Drug Company, Baltimore, Maryland.

is the most common cause of staghorn calculi. It is due to infection with urea-splitting organisms (mostly *Proteus*). These bacteria liberate urease, an enzyme which hydrolyzes urea into ammonia and carbon dioxide. The hyperammoniaemia and alkalinity that results cause urine to become supersaturated with struvite (magnesium ammonium phosphate) and apatite (calcium phosphate), with subsequent crystallization of these salts. Sometimes metabolic stone disease is complicated by infection with urea-splitting organisms, rapid formation of struvite and apatite occur around the primary type of stone. In many instances, anatomic or neurogenic abnormalities of the urinary tract predispose to infection.

The approach to therapy includes correction of underlying anatomic or neurogenic abnormalities, or metabolic disorder; removal of calculi and foreign bodies; and intensive treatment of infection. One difficulty in eradicating infection is that viable colonies of bacteria are often present within the stone and are thus inaccessible to antimicrobials. Large calculi should be removed surgically. Intensive antibiotic therapy should be started prior to surgery and continued after surgery. This should be immediately followed by long term suppressive antimicrobial therapy and urinary acidification. This may be accomplished by the combined use of mandelamine and ammonium chloride, maintaining urinary pH at 5.5 or less. Recurrent infection should be treated promptly with therapeutic levels of antimicrobial agents.

Small, recently formed calculi, or residual calculi after surgical removal, may be successfully treated medically. Again control of infection and urinary acidification are important. The phosphate-deprivation regimen advocated by Shorr, and methylene blue were reported to be effective in reducing or preventing growth and recurrence of struvite calculi. Specific urease inhibitors such as acetohydroxamic acid are being evaluated and may prove quite valuable in the prevention and dissolution of these stones.

SUMMARY

A brief discussion of the various therapeutic modalities available for managing patients with urinary tract calculous disease is presented. The various problems encountered in the management of these patients are outlined and a mode of management suggested for each problem. The importance of individualization is again stressed

and each patient should be studied and managed as a total individual.

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Atlanto-Axial Instability in Rheumatoid Arthritis: A Neglected Entity

Chet J. Janecki, M.D.* and Deborah H. Hill, R.N.**

INTRODUCTION

Cervical spine involvement in ankylosing spondylitis and juvenile rheumatoid arthritis are well recognized. But this region has received little attention in adult rheumatoid arthritis.

Rheumatoid arthritis is a chronic disease that may involve the cervical spine in addition to producing the more commonly recognized peripheral joint manifestations. Atlanto-axial instability and resultant subluxation has been reported in both rheumatoid arthritis and ankylosis spondylitis,^{1-4, 7-13} but its significance and prevalence has not been sufficiently emphasized. This potentially dangerous complication in rheumatoid arthritis is frequently undiagnosed. Those treating patients with rheumatoid arthritis should be thoroughly familiar with the features of atlanto-axial instability because of the problems in differential diagnosis of spinal lesions and the potentially fatal outcome.

The purpose of this paper is to further emphasize this problem to the clinician actively caring for patients with rheumatoid arthritis.

INCIDENCE AND NATURAL HISTORY

Rheumatoid arthritis of the spine involves the cervical region more often than any other; the adult form of the disease affects the cervical region in about 40% of the cases.^{3, 11} The incidence of atlanto-axial instability and subluxation in rheumatoid arthritis was estimated by Sharp and Pruser to be 3.2% in patients with any evidence of rheumatoid arthritis, 6.4% in patients with clinical evidence of the disease, and 18.9% in patients with rheumatoid arthritis admitted to the hospital.¹² Other studies have confirmed this high incidence.^{2, 4, 6, 9} Isdale's incidence was 33% in hospitalized patients, which progressed to 50% over a 5-year period in that same group.⁶ The appearance and progression of atlanto-axial instability appears to be directly related to peripheral destruction, joint instability, prolonged treatment with steroids and sero-positive rheumatoid arthritis with rheumatoid nodules. The age of the patient and

duration of rheumatoid arthritis has little influence on the incidence of atlanto-axial instability. The instability appears to develop gradually, and even insidiously in patients who are bed-ridden and lie with their heads supported by a pillow. The atlanto-axial joint is most often involved because its articular processes are in a horizontal plane. Maintenance of the normal relationship depends largely on supporting ligaments of the occipito-atlanto-axial complex, which normally allow a large range of motion, especially rotation.

The distance between the posterior-inferior margin of the anterior arch of the atlas and the anterior surface of the odontoid process normally does not exceed 2.5 mm in adults and 4.5 mm in children.^{3, 5} The pivot joint formed by the odontoid process of the axis and the anterior arch of the atlas is supported by the transverse ligament which is important to its stability. The synovial lined joints of the lateral articular facets and the central pivoted joint between the atlas and axis may be involved with rheumatoid activity, causing instability and subluxation. The resultant attenuation or rupture of the transverse ligaments with abnormal anterior movement of the atlas allows the spinal cord to be compressed or compromised by the odontoid (Fig. 1). Erosion of the odontoid by proliferative pannus causing reduction in size will allow even greater displacement. Symptoms are related to vertebral artery insufficiency, spinal cord, medullary or nerve root compression or local inflammation. Less frequently described is disruption of the occipito-atlanto-axial joint with herniation of the odontoid through the foramen magnum resulting in possible fatal medullary compression. Normally, the tip of the odontoid process lies 4.5 mm above a line drawn from the posterior margin of the hard palate to the most caudal portion of the occipital curve.^{3, 5}

CLINICAL PRESENTATION

The symptoms and signs which should arouse suspicion of atlanto-axial instability are: (1) persistent pain in the uppermost part of the neck with occipital radiation; (2) paresthesia of the hands and feet; (3) diminished motor power in the arms and legs; (4) disturbed bowel or bladder

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function; (5) difficulty in extending the neck with a tendency for the head to fall into flexion; (6) flattening of the normal occipital curve; and (7) vertebral artery insufficiency leading to dizziness and episodes of visual blurring with neck flexion.

Since the examination of the severely involved rheumatoid arthritic patient is often difficult, any question should require cervical spine and lateral flexion and extension roentgenograms of the cervical spine to determine whether true instability of the atlanto-axial junction exists, and also to confirm whether there is any odontoid erosion or herniation through the foramen magnum. If roentgenograms are indistinct, anterior and lateral flexion and extension tomograms of the atlanto-axial region should be made.

TREATMENT

Recent studies on the natural history atlanto-axial instability with subluxation suggests that non-operative treatment is all that is indicated in the majority of cases. The rationale of this treatment is that many of these spines become stable spontaneously, and subluxation in itself does not significantly shorten life expectancy in rheumatoid patients.^{4, 6, 7, 12, 13} Most patients receive satisfactory relief of pain by a rigid collar. The absolute indications for surgical treatment of such atlanto-axial instability is the presence of

neural involvement, vascular insufficiency, gross progressive instability and severe pain not responsive to non-operative measures.⁴ If surgical treatment is necessary, atlanto-axial subluxation is initially reduced by traction and a posterior fusion from the atlas to the axis will usually suffice (Fig. 2). If there is spinal cord compression and reduction is not possible, fusion in situ from the occiput to C3 with a laminectomy of the atlas is indicated.

COMMENTS

Rheumatoid arthritis of the cervical spine, as with peripheral joint involvement, requires proper medical management to control the activity of the disease. An awareness of the frequency of cervical involvement, especially atlanto-axial instability, is very important to the clinician caring for patients with rheumatoid arthritis. Symptoms of neck and occipital pain, spinal cord compression or vertebral artery insufficiency should be investigated because of the frequency and potentially fatal nature of atlanto-axial subluxation.^{9, 14} Periodic lateral flexion and extension roentgenographic views of the cervical spine with emphasis on evaluation of the occipito-atlanto-axial region should be taken when there is history of erosive rheumatoid arthritis and particularly when long-term corticosteroid therapy

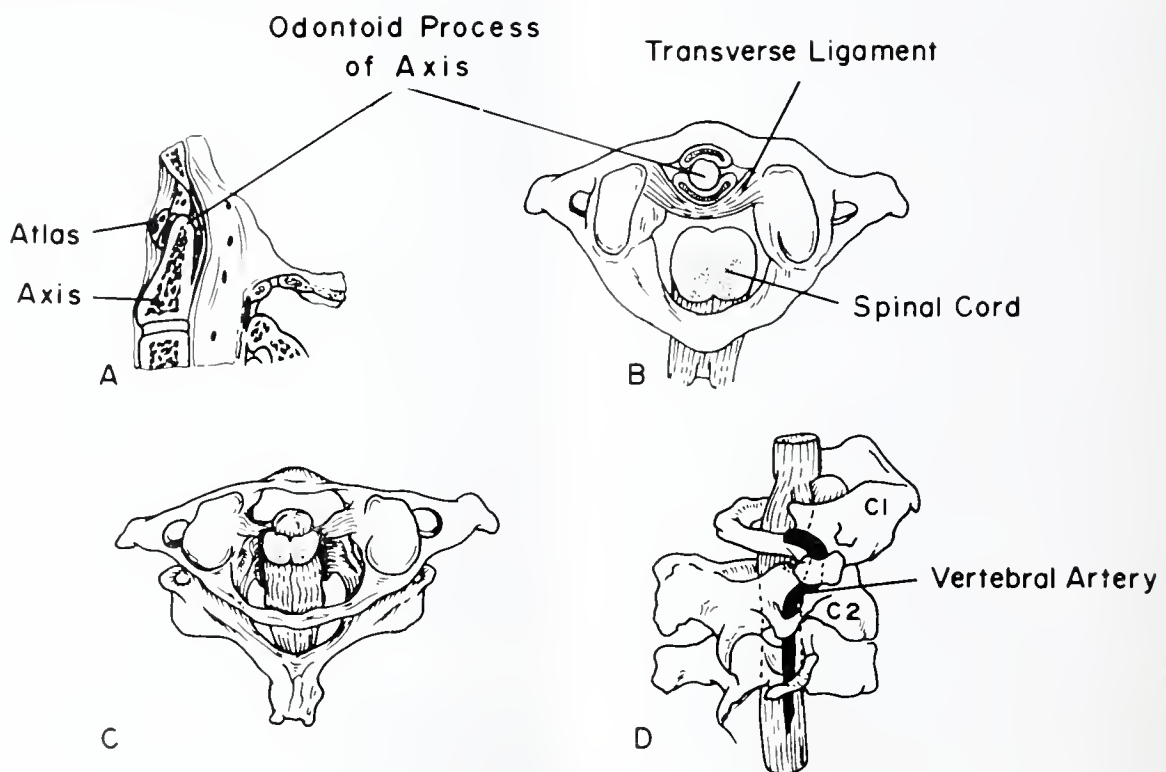


Figure 1A

A diagrammatic sketch of the relationship of the atlas and axis in a sagittal section.

Figure 1B

Shows the relationship of the ring of the atlas to the odontoid, transverse ligament and the spinal cord.

Figure 1C

Shows the alteration in normal relationship including spinal cord compression with attenuation of transverse ligament.

Figure 1D

Shows a lateral view of the atlanto-axial junction with subluxation and kinking of the vertebral artery.

has been given to the patient. This is especially important when administration of a general anesthetic is contemplated since manipulation of the head under anesthesia can be fatal under these circumstances. Lateral flexion and extension tomograms may be required for satisfactory roentgenographic evaluation of the upper cervical region.

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Figure 2A

Shows a lateral roentgenogram of the cervical spine with atlanto-axial subluxation (see arrow) in a 61-year-old rheumatoid patient with severe neck pain and radiculopathy.



Figure 2B

Same patient following an atlanto-axial fusion.

Office Orthopaedics

"Wrist Sprains"

C. Frank Dodson, Jr., M.D.*

Injuries to the wrist area are quite common injuries, although most are not serious. The usual mechanism of injury is a fall on an outstretched extremity resulting in forcible dorsiflexion of the wrist. However, injuries may be caused by either hyper-pronation or supination, or—rarely—hyperflexion of the wrist. The presenting physical signs in many traumatized wrists are quite similar, and consist of swelling, tenderness to palpation, and pain on the range of motion. Careful examination for precise localization of tenderness can be quite helpful in delineating

the exact focus of injury, but radiographs are really the key to exacting diagnosis.

The standard antero-posterior and lateral views may be sufficient for diagnosis, however the addition of AP views with the wrist in maximum radial and/or ulnar deviation, as well as lateral views with the wrist maximally flexed and/or extended, may yield additional information. Arthrography of the wrist is in development stages of understanding and is not widely used currently

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Figure 8A.



Figure 8B.

on a routine basis, but may be helpful in diagnosis of complex cases. Routine x-rays may be somewhat difficult and confusing to read, especially when only subtle abnormalities are present. Comparative views of the unaffected wrist may

be of great assistance in ruling in-or-out a "finding" as evidence of real pathology. There are a few anatomical facts which are of aid in determining whether a wrist injury is present or not by x-ray. There is normally approximately one

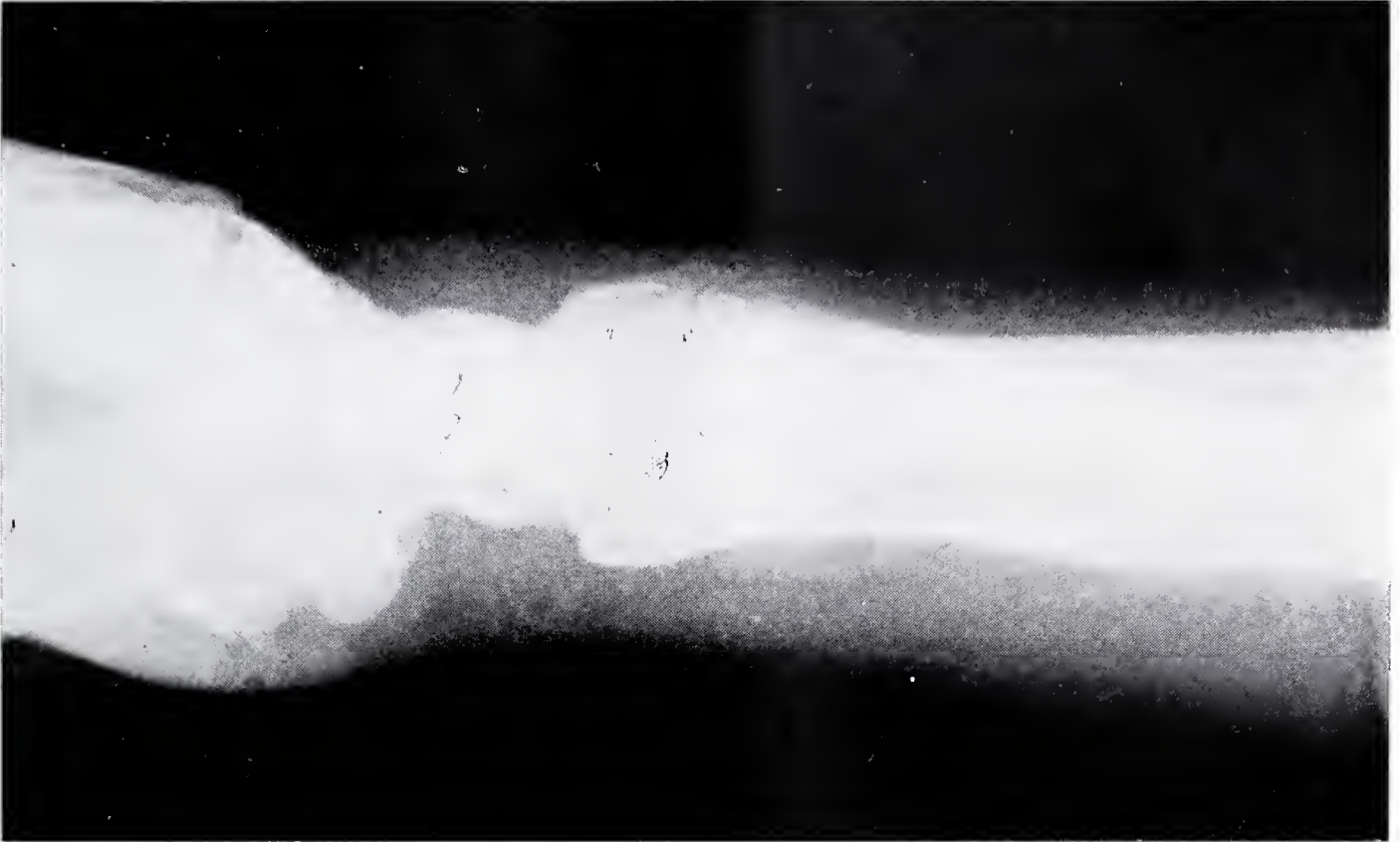


Figure 5A.



Figure 5B.

to two millimeters of radiolucent distance between the subchondral bone of each carpal bone (intercarpal), radiocarpal, and carpo-metacarpal joints. If this distance is increased to three millimeters or more, a ligamentous injury must be

strongly suspected. This is true for any of the views mentioned above, as evidence of intercarpal ligament tears may be present on only one of these six radiographs. Another important relationship to establish on the lateral view x-rays

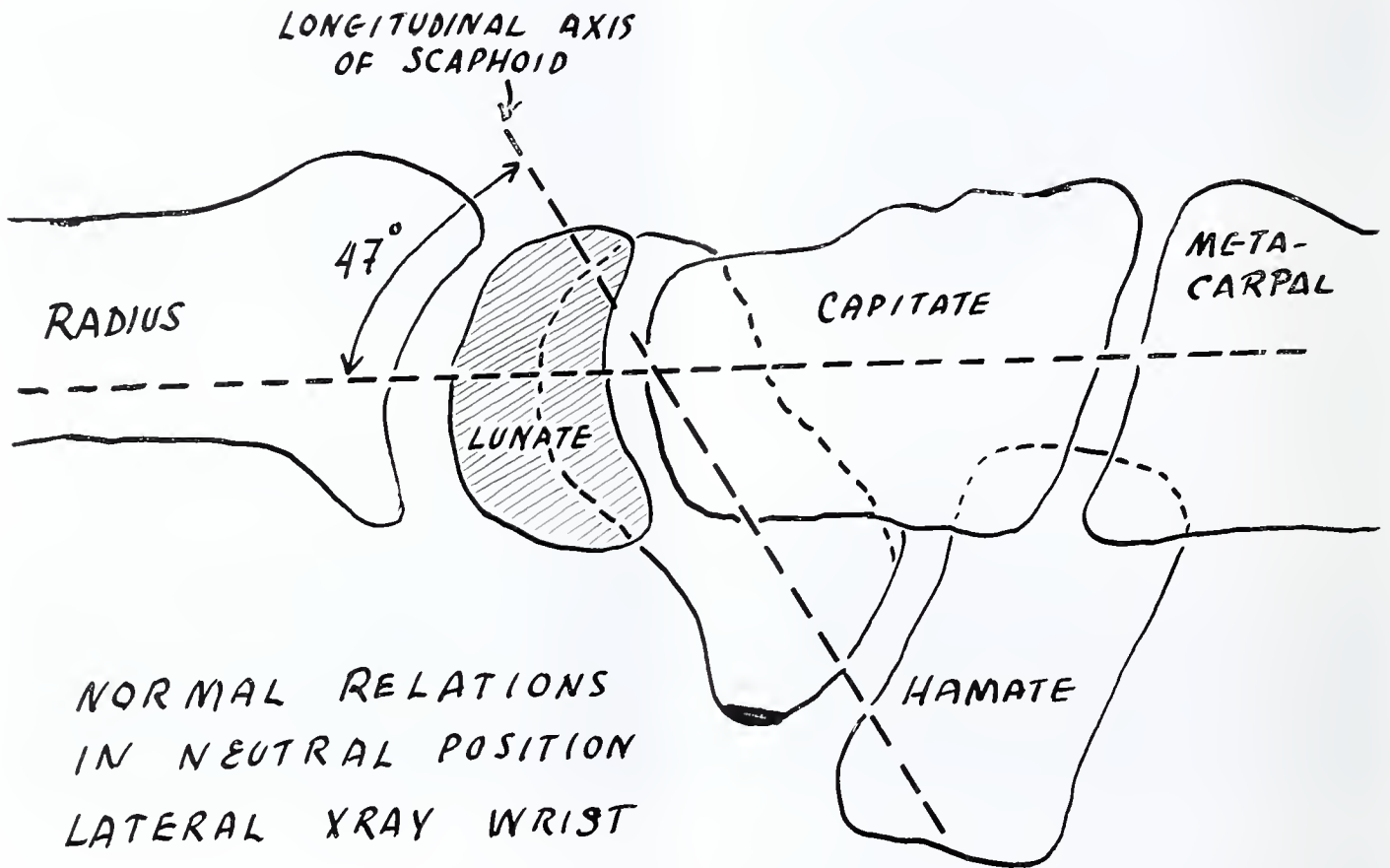


Figure 1.

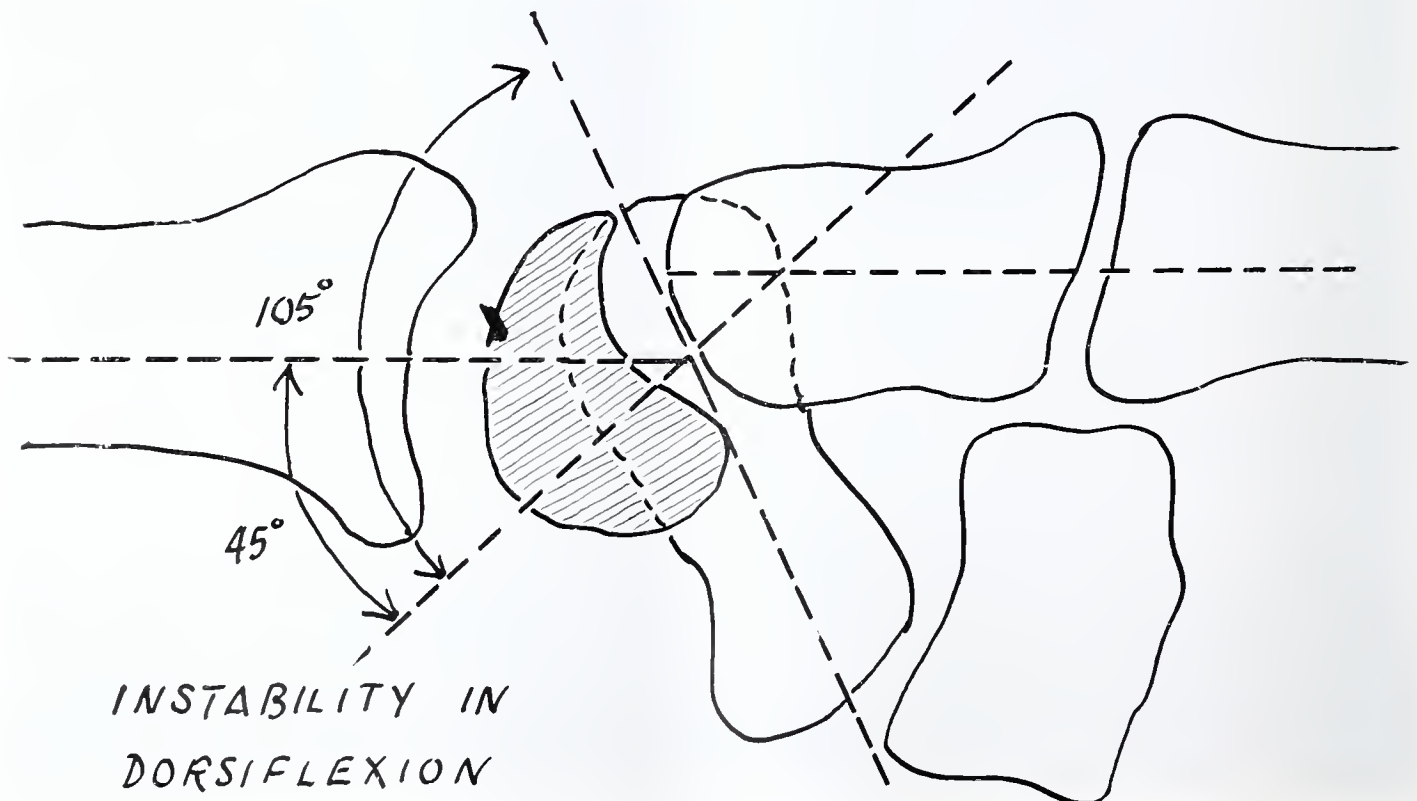


Figure 2.

with the wrist in neutral position is that of the longitudinal axes of the long finger metacarpal, the capitate, the lunate, and the radius all lie in a straight line. It may be helpful to pencil in the silhouettes of the individual carpal bones on the radiograph and derive the longitudinal axis of each independently in order to accurately evaluate their relative orientation. One other important principle is that in some carpal bone fractures, no obvious fracture line can be seen on roentgenograms made soon after the injury, but a definite fracture line or callus formation may become apparent two to three weeks following the injury. The carpal navicular is a notable example. (Fig. 8) Other pathologic con-

ditions, such as collateral ligament tears or injuries to the triangular fibrocartilage of the distal radio-ulnar joint may show no radiographic abnormalities in the standard projections. In children with open epiphyseal plates, there may be injuries to the distal physis (such as a Salter-type I injury) in which the epiphysis was displaced at the time of injury but reduced spontaneously or was manipulated successfully by the patient before seeking medical attention. Initial x-rays reveal no abnormality, however, callus formation may be noted in two to three weeks after such an injury. Likewise, a small torus (wrinkle, buckle) fracture of the distal metaphysis may be obscure radiographically.

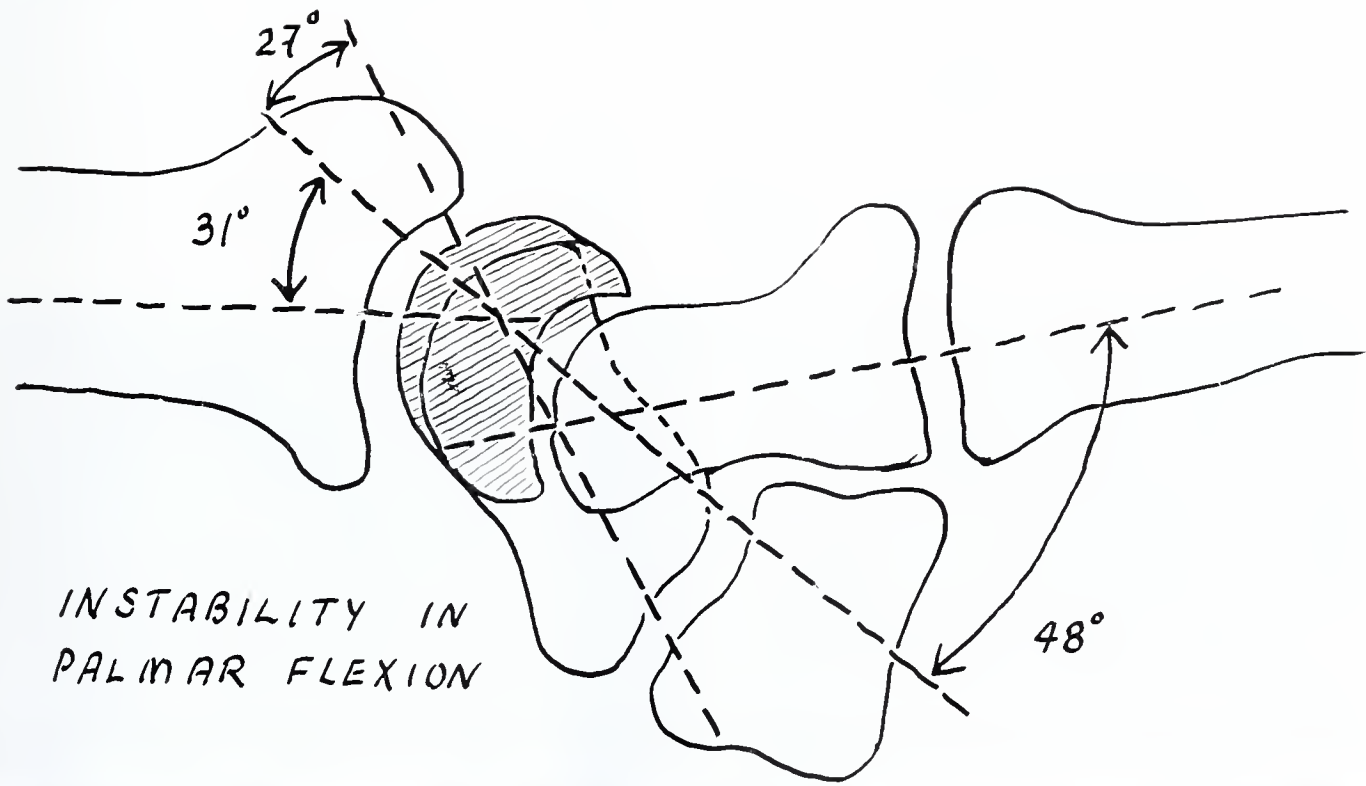


Figure 3.



Figure 4.

In adults, small fractures that might be overlooked in initial roentgenograms would include a minimally displaced Colles fracture (distal radial metaphysis with volar angulation), Smith's fracture (dorsally angulated fracture of the distal radial metaphysis), Barton's fracture (dorsal rim of the radius), or an isolated fracture of either the radial or ulnar styloid. A subluxation or dislocation of the distal radio-ulnar joint which has spontaneously reduced may require stress-lateral x-rays for demonstration (Fig. 5); these injuries are usually associated with tears of the triangular fibrocartilage as well as tears of the anterior and/or posterior radio-ulnar ligaments.

Injuries to the carpal bones occur most commonly in adults. Approximately seventy percent of all carpal injuries involve a fracture of the carpal navicular.² Following the fractures of the scaphoid, fractures of the lunate are next most frequent; the other carpal bones are infrequently fractured. Many of these fractures are not visible in initial roentgenograms but become apparent in two to three weeks. Other injuries that occur directly to the carpal bones include dislocations (usually of the perilunate type) or subluxations

of one or more of the carpal bones. A more recently described condition is called the segmental collapse deformity (intercalated segmental collapse) as described by Linscheid, Dobyns, et. al.¹ This report has brought attention to the more subtle intercarpal injuries which may result in long term disability. In this injury, the lateral x-rays are of paramount importance and accurate evaluation of the position of the affected carpal bones, specifically the relationship of the lunate to the scaphoid and capitate must be carefully evaluated. (Figs. 1, 2, 3, 4) Other forms of instability which may be significant are those resulting from rupture of the scapho-lunate ligament. This may be demonstrated by PA x-rays with the wrist in radial and ulnar deviation. Usually there is a significant increase in the scapho-lunate interval with ulnar deviation. (Fig. 6) Other subtle injuries include avulsion chip fractures from any of the carpal bones (usually dorsal aspect of capitate or triquetrium) or bones of the index of long metacarpals. (Fig. 7) These are usually most evident on lateral x-ray views and may be very difficult to appreciate on PA films.



Figure 6A.



Figure 6B.

Other conditions about the wrist may present following trauma, although they may have existed in a subclinical state prior to the injury. These would include: de Quervain's syndrome (stenosing tenosynovitis of the extensor pollicis brevis and abductor pollicis longus tendons), carpal tunnel syndrome, ganglion cysts, synovitis (metabolic or infectious) of the wrist, or intraosseous tumorous lesions of the carpal bones.

Since there is such a broad range of injuries which may present as a "wrist sprain", it is difficult to cover in a short paper such as this the definitive treatment of each injury. Excluding displaced fractures and/or dislocations, many of these injuries will respond favorably to splinting or casting for one to two weeks, which allows the acute inflammation and edema to resolve such that a more revealing examination may be conducted after the immobilization. Upon re-evaluation in such cases, a definitive diagnosis may become apparent with the aid of more radiographs, and specific treatment can be initiated at that time. Complications of wrist injuries, such as

median or ulnar neuropathy, upper limb dystrophy, or ischemic contracture are rare, but may ensue without proper management.

In summary, the proper evaluation of a patient having sustained trauma to the wrist must include a systematic and thorough history and physical examination, adequate x-rays, and full consideration of the spectrum of diagnostic possibilities on the initial examination—and realization that subsequent re-examination and x-rays may be required for accurate diagnosis.

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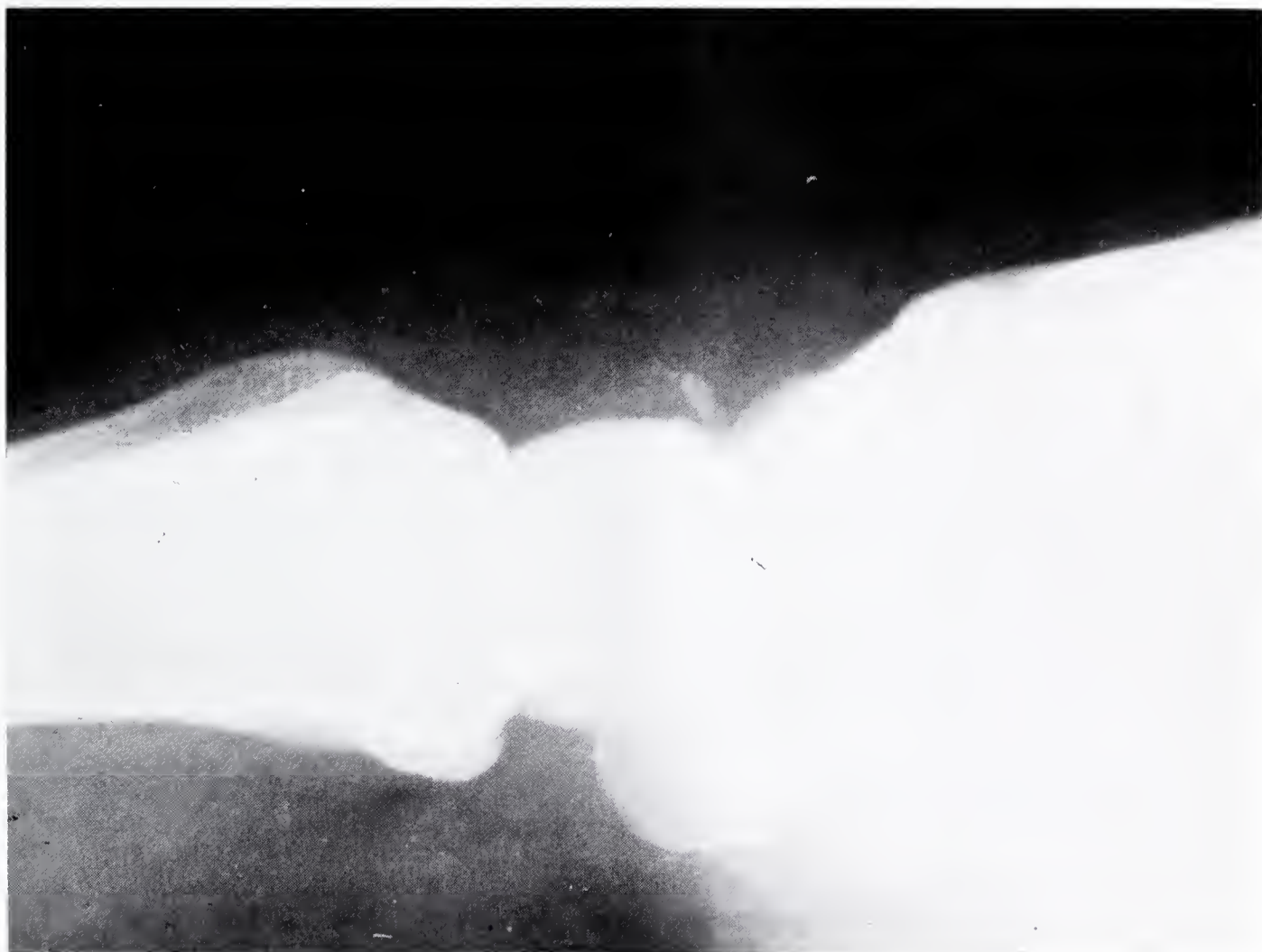


Figure 7.



The Department of Cardiology, University of Arkansas College of Medicine

DIAGNOSIS:

1. Demand pacemaker with a free running interval of 855 m. sec.
2. Underlying rhythm atrial fibrillation.
3. Inappropriate sensing. (See beat 11)

ZS

11



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Characteristics of the Sports Medicine Practitioner

James A. Arnold, M.D.,* Tom P. Coker, M.D.* and Carl L. Nelson, M.D.**

Authors' Note: This is the first of a series of articles prepared for The Journal of the Arkansas Medical Society on the topic of sports medicine. The series is prepared in cooperation with the University of Arkansas Department of Orthopaedics, Division of Sports Medicine, in an effort to encourage sports medicine education of physical educators, coaches, and athletes by the regional practitioner. Areas covered will include: attitudes in sports medicine; rules and athletic equipment; exercise physiology; conditioning programs; specific athletic injuries, with diagnosis, treatment, and prevention techniques.

The first of the series will refer to the challenge of sports medicine program at the University of Arkansas on August 3rd through 6th. Brief medical presentations will be included in the initial two days as part of the annual All-Star Clinic in Conway, Arkansas, devoted to physical educators. On Friday, August 5th, the program will be oriented to the physicians interested in sports medicine, at the University of Arkansas for Medical Sciences. Finally, on August 6th, specific athletic problems will be discussed with a group of guest orthopaedic surgeons hosting a workshop period. The All-Star Game will be held that evening at War Memorial Field.

Programs and registration information for the latter two days may be obtained by contacting: Office of Continuing Education for Physicians, Slot 525, 4301 West Markham, Little Rock, Arkansas 72201.

Physicians are encouraged to invite their physical education associates to attend the early session in Conway, as a well-designed program in recent training techniques, exercise physiology, and developments of a proper emergency program and rehabilitation techniques is planned.

Sports medicine is a fairly new development in health care in the United States. Not a true specialty, this field has proven to be attractive to many physicians who have no special qualifications except their interest in active, healthy people.

There was a time when it was thought that medical care for athletes should come from surgeons and especially from orthopaedists because the major emphasis was on the treatment of injuries. Injuries do, and always will, occur in strenuous sports. Many will indeed require specialized care, but trauma is not the major medical problem in sports medicine today.

There are more services needed behind the scenes than physical examination and emergency

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care of athletes. There is a phenomenal increase of participants in a constantly growing variety of sports activities, both in the schools and in programs under community direction in both sexes. Therefore, there is a proportionately greater need for health care. Hopefully, the practitioner will not hesitate to get into the action as this is enjoyable and one of our primary challenges as educators. We must work with those concerned toward the development of character in children in the formative years. It has been said that changing the old pro is next to impossible, a young pro possible, a college-age youth probable, a motivated high school youth most likely, and a child always, providing the approach, reasoning, and understanding are there.

Today, orientation must be on prevention of injuries, with major emphasis on the medical and physiological problems associated with sports and exercise. Thus, sports medicine has extended to include the physiology of conditioning for endurance, strength, and heat acclimatization. A program of involvement in improved protection equipment, rule changes, and safe, satisfactory training facilities make the job of the practitioner of sports medicine a far more enjoyable and challenging effort than that of the team physician in the past. Much more is required of the team physician than that of a traumatologist. For example, he must be a dietician. He stresses a well-balanced diet and sensibly-controlled use of supplements and vitamins. The importance of pre-game meals that are low in fat and protein and high in carbohydrate should be emphasized to players and coaches, as well as free access allowed to water at all times during practice and games, with adequate sodium and potassium supplementation. More regarding this area of physiology will be presented in an upcoming article in this Journal.

The team physician must insist that strength, skill, and perseverance are qualities to be developed by the individual and the team—qualities that cannot be developed through pills, Vitamin B₁₂ needles, or through searches for magic food formulae. Stimulants, depressants, steroids, diuretics, and strong pain-killers all have been found to be of no value in sports. Given in significant doses, they have a deleterious effect on the athlete, which could be long lasting. In summary there is no substitute for work.

The physician is also called upon to be a physical therapy consultant. Four requirements are needed for successful performance: strength, endurance, flexibility, and agility or skill. Cardiovascular fitness is mandatory for all sports. Strength and endurance are important in varying degrees. Certainly, however, the physician should not advise on skill, which is left to the coaches. Yet, he should understand specific game skills to help understand injuries and assist in his rehabilitation. Flexibility cannot be overemphasized. Probably the most common point made by university graduates who return to their alma mater for the summer after their first professional year is the importance of flexibility in injury prevention and rehabilitation. Muscle pulls and ankle injuries can greatly be diminished by a thoughtful stretching program. This may be a difficult area, as modern medicine prophylaxis methods are often overlooked during the intense coaching pressure for winning performances. With loss of key athletes, however, the physician may be able to emphasize the importance of a good flexibility and conditioning program. A flexibility program will be found to be equally important to the practitioner when treating the older recreational athlete or jogger.

Lastly, the sports medicine physician must be a psychologist. When a son or daughter loses, there must be a friendly ear or pat on the back. It may be necessary to assume the role of guidance counselor and channel the youth into an alternate activity. Stresses now placed on young athletes may be tremendous. Psychiatric studies recently have made us aware that fan-parent-spectator verbal expressions of anger are a common catharsis of fulfilling psychic needs in a safe, socially acceptable manner. We also must avoid commenting on a player's problem. Confidentiality and privileged communication should exist between the sick or injured player, as it does in the private practice of medicine.

In essence, the function of a sports team physician is simple. He is the doctor of patients who are members of the team. He does not say who will play, but has the unenviable task of saying who will not play. His position is that no athlete can be permitted to risk aggravation of a traumatic defect of permanent disability. We must keep players informed of dangers. We must accurately appraise their health and their injuries.

We must protect the player at all times. Doing that, we protect schools, coaches, and trainers, as well as the athlete. We thereby also protect ourselves from the problems noted. We must encourage the passage of rules, regulations, and appropriate legislation, if necessary, for the safety and health of the athlete. We must enlist the aid of the media to promote these objectives and to discourage attitudes which promote undisciplined behavior and thinking. We must enlist the aid of allied professionals, just as they seek our aid in reaching these same goals. We must further research, inform, and educate our fellow physicians, allied professions, and the public. When we are on the bench, with the team, or in the office seeing an athlete, we must remain the physician.

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PUBLIC HEALTH AT A GLANCE

Realisms of Infant Feeding

Carolyn Fowler*

The weight of the mother and her increases in weight during pregnancy are intimately related to the size of the newborn. Healthy women on balanced diets who eat "to appetite" gain variable amounts of weight during pregnancy. The ideal gain is 20 to 25 pounds for the most favorable outcome. Weight reduction programs should not be imposed. It is known now that a baby may be small at birth because it was born prematurely and because it received insufficient nutrition before it was born. Dr. Elsie M. Widdowson says, "if undernutrition takes place at a time when cells are rapidly dividing so that the full

number of cells is not achieved over that period, the animal may never recover."¹ Good nutrition is clearly indicated and important to efficient reproduction.

We do not always appreciate the magnitude of growth in infancy. A baby's weight may triple in his first year, a rate that is secondary only to that of the intrauterine period and far exceeds the rate in adolescence. Most infants grow normally and maintain satisfactory health in spite of wide variation in nutritional management. You may, as a practitioner, then ask whether differences in feeding practices really matter. If so, how are you responding to these questions:

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Is breast feeding important?

When can my baby be switched from formula to whole milk?

How can I keep my baby from getting fat?

When do I add strained foods?

Which strained foods and how much?

Dr. Samuel J. Fomon says that several nutritional principles relate to infant feeding and he lists these as follows:

- The diet should be adequate but not excessive in calories and all essential nutrients.
- The diet and its mode of administration should be conducive to development of sound eating habits.
- The diet should be readily digested.
- A reasonable distribution of calories should be derived from protein, fat and carbohydrate.¹

The Committee on Nutrition, American Academy of Pediatrics, published proposed standards for infant formula in 1967 and FDA infant formula standards were published in 1971. In 1976, a commentary on Breast Feeding and Infant Formula Including Proposed Standards for Formula was published in *Nutrition Reviews*.² This commentary stated present standards apply to formulas as prepared for healthy infants from birth (2.5 to 10 kg).

Unmodified cow's milk and evaporated milk at usual dilutions do not meet the proposed standards. While normal growth occurs with the use of cow's milk, iron deficiency and hyperphosphatemia are common complications. Vitamin C supplement is needed. The high salt and saturated fat content of cow's milk may have adverse effects on later health.^{3, 4} Its high protein and mineral content increases the risk of dehydration and hypernatremia whenever diarrhea or other conditions increase the demand for water.

Should I give my baby skim milk instead of whole milk? Dr. Fomon says after two years of age most American children would benefit from drinking skim milk rather than whole milk. Until one year of age skim milk has no place in the infant's diet. When skim milk serves as a major source of calories during infancy, the child's calorie intake will usually be inadequate, his protein intake excessive, his fat exceedingly low, and his intake of essential fatty acids inadequate.

It is worth noting, according to Dr. Fomon, that substituting strained foods with greater

caloric density would do little to improve the percentage of calories from protein, fat and carbohydrate. The only strained foods providing substantial amounts of fat are also high in protein. Dr. Fomon recommends that modest rather than drastic reduction in calorie intake be employed (i.e., calorie intakes not less than 90 kcal/kg day). The diet should provide 7 to 16 percent of calories from protein and 35 to 55% of calories from fat. These dietary stipulations can be met with ease when human milk or cow's milk serves as a major source of calories but are nearly impossible to meet when skim milk is fed.

The age when semi-solid foods are introduced tends to be based more on contemporary practice than on nutritional requirements. It is thought most infants in the United States receive some solid food as early as the first weeks of life. Arguments often used to support the early use of solid foods include the fact that infants as early as 3-10 days of age seem to tolerate cereals and some strained foods. In addition mothers often perceive that these foods help solve problems such as infant fussing and irregular sleep habits, especially at night. However, there is no convincing evidence to support these contentions.

The age of termination of the night feeding is unrelated to the age of acceptance of solids, type of milk, calorie intake, birth weight, growth or position in the family. Fomon¹ has pointed out that the early introduction of commercially available cereals or solid foods serves no nutritional advantage, and it is an added economic burden or cost which is unnecessary.

Strained foods should provide essential nutrients not present in adequate amounts in the milk or formula and will (1) help balance the dietary percentage of calories from protein, fat and carbohydrate; (2) help adjust the infant's calorie intake to a desirable level.

According to Dr. Fomon, if an infant receives at least half of his calorie intake from whole cow's milk, his intake of protein will be adequate. His major needs will be for additional calories primarily from carbohydrates, and for iron, ascorbic acid and fluoride. Most of the widely used strained foods are rich sources of carbohydrate, and it is therefore possible to provide carbohydrate in this form.

Growth grids and dietary records are tools for

the evaluation of dietary adequacy. Proper nutrition can help the infant avoid the risk of the insufficiencies and excesses which may cause problems during infancy and which may be associated with problems in later life.

New interest in maternal and infant nutrition has come about because of the special Supplemental Food Program for Women, Infants and Children (WIC Program). The legislation which established the WIC Program required the provision of supplemental foods containing nutrients known to be lacking in diets of population at nutritional risk, particularly high quality protein, iron, calcium, Vitamins A and C.

Dr. Jean Mayer in an article, "The Dimensions of Human Hunger," says "the number of people who are poorly nourished or undernourished can only be roughly estimated but they probably represent an eighth of the human population. The human beings most vulnerable to the ravages of malnutrition are infants, children up to the age of five or six and pregnant and lactating women. For the infant, protein, in particular, is necessary during fetal development for the gen-

eration and growth of bones, muscles, and organs. The child of a malnourished mother is more likely to be born prematurely or small and is at greater risk of death or permanent neurological and mental dysfunction. Brain development begins in utero and is complete at an early age (under two). Malnutrition during this period when nervous and neuronal connections are being formed may contribute to mental retardation that cannot be remedied by later corrective measures. The long-term consequences not only for the individual but also for the society and the economy need no elaboration."⁵

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EDITORIAL

Joints — Medical Variety

Alfred Kahn, Jr., M.D.

Rheumatoid disease is a scourge to patient and physician alike. There does not appear to be any cure in sight—and in a certain number of cases, the disease is progressive despite newer medicines, surgery, and physio-therapy. The medical literature attests to abundant but not highly fruitful research in this area—as far as effecting a cure. There is some good investigative work in progress on rheumatic disorders, however.

Griffiths, Smith, Ward, and Klauber (*Journal of Clinical Investigation*, Vol 58, p. 613, Sept., 1976) have studied "Cytotoxic Activity of Rheumatoid and Normal Lymphocytes Against Allogenic and Autologous Synovial Cells in Vitro". The authors cite work indicating that rheumatoid disease of joints might arise "from local immune responses to antigens present in the synovial tissues"; this is attested to by lymphocytes and macrophages in rheumatoid synovium and

joint fluids—and by improvement with removal of circulating T-cell. Griffiths, et al made tissue cultures of fibrocytes taken from the synovial membranes of patients with rheumatoid disease. They tried to find an antigen produced by the culture which might cause rheumatoid disease; they were unsuccessful. Also contrary to other studies, when Griffiths and his associates made lymphocyte preparations from rheumatoid patients and tested them against autologous synovial cells for cytotoxic activity—no real cytotoxic activity was found. The authors did note that some lymphocytes from certain patients with rheumatoid disease demonstrated somewhat more cytotoxic effect against young allogenic synovial cells than occurred with normal lymphocytes.

In the same issue of *The Journal of Clinical Investigation* is a paper by Person, Sharp and Lidsky on the same topics as Griffiths', et al paper—"The Cytotoxicity of leukocytes and lymphocytes from Patient with Rheumatoid Arthritis for Synovial Cells." (*Journal of Clinical Investigation*, Vol 58, p. 690, Sept., 1976). They felt that their studies indicated that sensitized lymphocytes from patients with rheumatoid arthritis were able to identify a specific rheumatoid related antigen which was present on rheumatoid synovial cells. This work seems to be at variance from Griffiths' work; both studies seem well controlled; the report of Griffiths' stresses that the age of the cultures seems to play a role in the degree of reactivity between the lymphocyte and the synovial cells.

Osteoarthritis is the target of an article by Lippiello, Hall and Mankin from the Massachusetts General Hospital (*Journal of Clinical Investigation*, Vol 59, p. 593, Apr. 1977). They point out that articular cartilage is made up of 55% insoluble collagen and proteoglycan. These substances are said to be locally made by chondrocytes. Part of the metabolic processes in cartilage is quite rapid; proteoglycan turnover has comparatively active turnover. Articular cartilage is said to be a comparatively inert substance but that some metabolic turnover does occur. Both collagen and proteoglycan have been studied in osteoarthritis. Previous work indicates that in osteoarthritis "a marked increase in the rates of incorporation of labeled precursors of the proteoglycan macromolecule" occurs. They further state that in osteoarthritis "there is an accelerated

rate of synthesis of this material which appears to parallel the severity of the disease". The collagen component was studied by Lippiello, Hall, and Mankin. Although collagen was formerly considered relatively inert in cartilage they found proline was incorporated into cartilage four times the amount in osteoarthritis as in normal joints. Hydroxy-proline was studied as an index of collagen turnover and it was found to increase six fold. The latter varied with the degree of arthritis.

Injury to joints can be crippling and for this reason, understanding of how cartilage repairs itself is important. Zucker-Franklin and Rosenberg (*Journal of Clinical Investigation*, Vol 59, p. 641, Apr., 1977) have described "Platelet Interaction with Modified Articular Cartilage". The authors discussed the fact that platelets as a repair factor for damaged connective tissue have never been studied in depth; with specific reference to joints, it appears that platelets do not adhere to joints and there is no interaction between minced cartilage and platelets. Zucker-Franklin and Rosenberg then removed proteoglycan from joint cartilage and found that platelets would aggregate on the cartilage collagen; if proteoglycan was again added to the collagen and platelet mixture, the joint cartilage became inert. The authors injures intact joint cartilage of the living rabbits and found that there was no platelet adhesion; however, when the joint was treated by intra-articular trypsin and then later injected with blood, platelets did adhere to the cartilage surface. They feel that this type of interaction could lead to joint repair.

Another interesting paper reflecting possible cause of osteoarthritis is "Collagenase and Collagenase Inhibitors in Osteoarthritic and Normal Human Cartilage" by Erlich, Mankin, Jones, Wright, Crispen, and Vigliani (*Journal of Clinical Investigation*, Vol. 59, p. 226, Feb., 1977). The thrust of the paper is to the effect that in long standing osteoarthritis most of the joint cartilage is lost — and this probably represents more than just wear and tear. They report that there are enzyme systems which can degrade proteoglycan. The mechanism for collagen destruction in osteoarthritis has been obscure. In rheumatoid and septic arthritis, a synovial collagenase has been found and it will destroy the collagen of cartilage. Ehrlick et al have found

a heretofore undiscovered collagenase in osteoarthritis cartilage. Thus, if the presence of this enzyme could be confirmed, a good explanation for the cartilage destruction in osteoarthritic joint disease would be at hand—not wear and tear but

enzymatic destruction.

Much of the disability of our aging population is due to joint disease. Research in joint disease will ultimately lead to better control—and to better, more comfortable living for the aged.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The Congress has received its first major health bill from the Carter Administration—a massive and complicated program for limiting hospital revenues to a nine or ten percent rise annually. Income from all inpatients, private as well as federal beneficiaries, would be affected.

Hospitals exceeding the allowable increase could be socked with a penalty tax amounting to 150 percent of the “overcharges”. Such offenders also would have to reduce charges the following year.

Physicians’ offices were not affected by the proposed legislation, though Health, Education and Welfare Secretary Joseph Califano has indicated this is under study.

The hospital plan received the fanfare of a White House send-off, with a statement by President Carter and White House briefings of affected groups and of reporters. Contrary to some expectations, Carter did not use the plan as the keystone of a major health message to Congress, though he mentioned national health insurance.

“Unrestrained health costs also restrict our ability to plan necessary improvements in our health care system,” Carter said. “I am determined, for example, to phase in a workable program of national health insurance. But with current inflation, the cost of any national health insurance program the Administration and the Congress will develop will double in just five years.

Congressional hearings are expected to open

in a few weeks on the hospital program. There’s no way the proposal will get through Congress unscathed, experts believe. The lawmakers have been pushing to brake the costs of Medicare and Medicaid, but a cost-control program involving an entire private industry is a different matter. There is almost no sentiment in Congress for a revival of wage-price controls for the economy as a whole.

At the insistence of organized labor, the proposal contains an exemption for hospital wage increases which by itself would appear to blow the nine percent restraint out of the water. A hospital could adjust upward its permissible revenue by the amount of any wage increase.

Inpatient revenues of the 6,000 acute hospitals in this country are covered. Brand new hospitals, federal hospitals, and hospitals controlled by Health Maintenance Organizations (HMO’s) would be exempt.

The legislation also imposes a limit on new capital expenditures, fixing a national level for such expenditures below that of recent years and allocating new capital spending among the states by formula. With the assistance of local planning agencies, each state would determine how the hospitals can make capital expenditures.

States which operate cost containment programs which are capable of meeting the federal criteria could continue their own regulatory approaches.

President Carter said his program will save about two billion dollars in fiscal year 1978—starting next October. This would work out to

over \$650 million in the federal budget, over \$300 million in state and local budgets, and almost \$900 million in private health insurance and payments by individuals. In fiscal year 1980, total savings were put at \$5.5 billion.

The American Hospital Association charged that the control measure "would severely jeopardize the provision of hospital care to the American public." Hospitals and physicians will unite in opposing it, the AHA said.

"This proposal would not only prevent hospitals from increasing services to patients, it would require some to cut back existing services," said J. Alexander McMahon, President of the AHA, at a Washington, D.C. news conference.

"The real victims would be the sick and injured, and for their sake, hospitals across the country will unite to oppose this bill."

McMahon said the Administration's proposal is "extremely complicated and would require a huge bureaucracy to enforce it, further adding to hospital costs." He predicted flatly that Congress would reject the plan.

American Medical Association Executive Vice President, James H. Sammons, M.D. said that while he could not comment in detail on the President's proposal without study that "the medical profession must be concerned about the impact that this concentration on expenditures will have on the quality and availability of hospital care for the American people."

Walter J. McNerney, President of the Blue Cross Association, said a program to limit the rate of increase in revenues on any segment of the health care industry, whether hospitals or other providers, ought to be designed not only to moderate cost increases but, equally important, to provide incentives for more efficiency within the established revenue restrictions." He urged greater flexibility.

Michael Bromberg, Director of the Federation of American Hospitals (FAH), said the proposal "is unfair and arbitrary and it will not work. Not only is it impossible to inhibit inflation by law, but there is a real danger that by legislating a ceiling on hospital costs, the Administration would be directing hospitals to cut back on the quality of health care delivery," he said.

As Carter described his plan, "This legislation is not a wage-price control program. It places no restrictions on the hospital's ability to determine its charges for any particular service. It places no

limit on the size of any wage demand or settlement. The program establishes an overall limit on the rate of increase in reimbursements, permitting doctors and hospital administrators to allocate their own resources efficiently, responding to local needs and individual circumstances."

The cost containment system is "intended to flow directly into a long-term prospective reimbursement system," said Carter. Congress and the Administration are already at work on this long-range system, he added.

Under the bill, the basic limit on increases in total inpatient-care revenues would be set by a formula reflecting general price trends in the economy as a whole, plus an additional amount to accommodate some increase in intensity of patient services.

* * * *

A crucial vote is coming soon on legislation to arm the Federal Trade Commission with strong new powers over business and to expand its authority over non-profit groups including medical associations.

The full House Commerce Committee will be taking up a bill approved recently by the Subcommittee on Consumer Protection. The issue pits consumer against business interests with important implications for the medical community.

The FTC has been very active for more than a year in the medical field, taking actions against medical ethical advertising codes, relative value scales, antitrust inquiries about possible resistance to Health Maintenance Organizations (HMO's), challenging the validity of professional accreditation, among other moves.

Heretofore, the Agency has not had the power to act against non-profit associations without contending that it is dealing with aspects that are essentially commercial. The bill before the House Committees would for the first time make non-profit, professional groups a clear responsibility of FTC.

The American Medical Association has urged that non-profit organizations not be placed under FTC control.

Testifying against the legislation (H.R. 3816), former Federal Communications Commissioner Newton Minow, speaking for the AMA, warned Congress that an FTC battle could devastate non-profit groups.

"A host of diverse organizations having little or no impact on our economy would become

subject to the regulatory jurisdiction of the Commission if this provision is adopted," said Minow. "Organizations such as the Boy Scouts of America, the Democratic National Committee, the National Association for the Advancement of Colored People or the United Fund could suddenly find themselves targets of an FTC investigation..."

Under H.R. 3816, the FTC could seize the assets and records of non-profit associations, and levy fines up to \$5,000 per day. The AMA warned that this extreme power was being granted, not to the normal repository of such authority—the judiciary—but rather to a federal agency.

"The cumulative effect of the vast punitive powers and resources of the FTC would cause all but the most well financed organizations to succumb to FTC pressures and demands," Minow said. "It is difficult enough for large business corporations, which can pass such costs on to their customers, to do battle with the government. But for a not-for-profit charitable, scientific or educational organization such a battle can be totally devastating. The ends of justice are not served where vindication also means bankruptcy."

Mr. Minow also warned that charities subjected to such treatment would be hardpressed and would be forced to rechannel funds from humanitarian directions to legal protection.

"Every dollar that the American Cancer Society was required to spend on Federal Trade Commission matters would be one less dollar for cancer research."

Focusing on the health sector, the AMA spokesman pointed out that many aspects of the health field today don't correspond to the free competition model, which is the credo of the FTC. For example, certificate of need requirements, placed on health care facilities by the 1974 Health Planning Act prevent unrestricted and competitive expansion by hospitals.

"The Federal Trade Commission has gone on record as opposing certificate of need laws as anti-competitive," said Minow. "If these health care institutions are brought within the jurisdiction of the Commission, they will thus be faced with conflicting governmental obligations." Similarly, the Maximum Allowable Cost regulations mandated that costs for drugs supplied under Medicare and Medicaid should not be

established by free market but rather by a price fixed by the Department of Health, Education and Welfare. "Extension of the FTC's jurisdiction to organizations governed by such conflicting policy and regulatory programs would be inconsistent with previous expressions of Congressional policy in this area." The AMA spokesman claimed.

Minow cautioned that the proposed extension of FTC authority would ultimately work against the public interest.

"Professional societies are continually exhorted to exercise more supervision and regulation over the conduct of their members. The Commission, however, would release these individuals from the ethical structures of professional associations and subject the public to action based upon the unrestrained ingenuity of individual professionals with only the government able to guard against any excess."

* * * *

The short and unhappy bureaucratic life of Christopher Fordham, M.D. has been concluded in a policy dispute with HEW Secretary Joseph Califano. Dr. Fordham, designated to be the Assistant HEW Secretary for Health, spent several weeks on the job before deciding he had had enough. The physician returned to the University of North Carolina where he heads the medical school.

Dr. Fordham's decision to leave rocked the Washington health establishment and the HEW Department. Fordham concluded the Assistant Secretaryship had been stripped of authority and that others in the Department, especially Califano, would be calling the shots on health-policy matters.

The nomination of Dr. Fordham was ready to go to the Senate when he made his announcement in a brief letter to Califano citing "deep personal reasons." The North Carolinian would have been the final member of the HEW top command to be officially seated at the agency.

The delay in filling the spot, and the reason for Dr. Fordham's leaving, is caused by the downgrading of the position as a result of the HEW reorganization in which effective control over Medicare and Quality Assurance has been taken from the health branch of HEW and given to the new Health Care Financing Administration (HCFA).

* * * *

The nation's health shows steady improvement, according to a 25-year mortality survey by the National Center for Health Statistics.

Since 1950, the death rate from stroke and heart disease declined steadily in those aged 25 to 74 and deaths from tuberculosis, once a leading cause, now number 3,000 annually.

Dorothy Rice, the Director of the Center told the Senate Health Subcommittee, "the spectacular decline in death rates from heart disease may well reflect improvement in medical care . . . there appears to have been no reduction in the incidence of heart disease during this period of sharply declining mortality."

The mortality rate from heart disease dropped 30 percent in those aged 45 to 74, with the biggest gains coming in the last six years.

The death rate from stroke fell even more sharply during this period—a 50 percent decline for the 45-64 age group and a 45 percent reduction for those 65 to 74.

The aging of the entire U. S. population is demonstrated by the decline in the overall death rate. After leveling off in the 1960's the death rate has steadily declined in the 1970's and reached an all-time low in 1975 of 8.9 deaths per 1,000 population.

Lung cancer had the biggest jump in death rate, doubling in men and going up four times in women since 1950.

The increase has offset declines in the death rate from cancer of the stomach, rectum, cervix, and uterus.

Infant mortality declined from 29.2 to 16.1 deaths per 1,000 live births, but the United States still ranks 15th in infant mortality.

"The total rate . . . masks persistent differences for major population groups," reports Mrs. Rice. The death rate for black infants is 41 percent higher than for whites, and for black infants the mortality rate during the first four weeks of life (18.3 per 1,000 live births) exceeds the death rate of white infants during their entire first year of life (14.2).

Mrs. Rice attributes this to the high birth rate among black teenagers with the attending lack of adequate prenatal care.

* * * *

President Carter has sent an expanded child health screening program to Congress.

The Child Health Assessment Program (CHAP) will replace Medicaid's Early and Periodic Screening, Diagnosis and Treatment

Program (EPSDT) for children. The CHAP legislation calls for new spending of \$180 million.

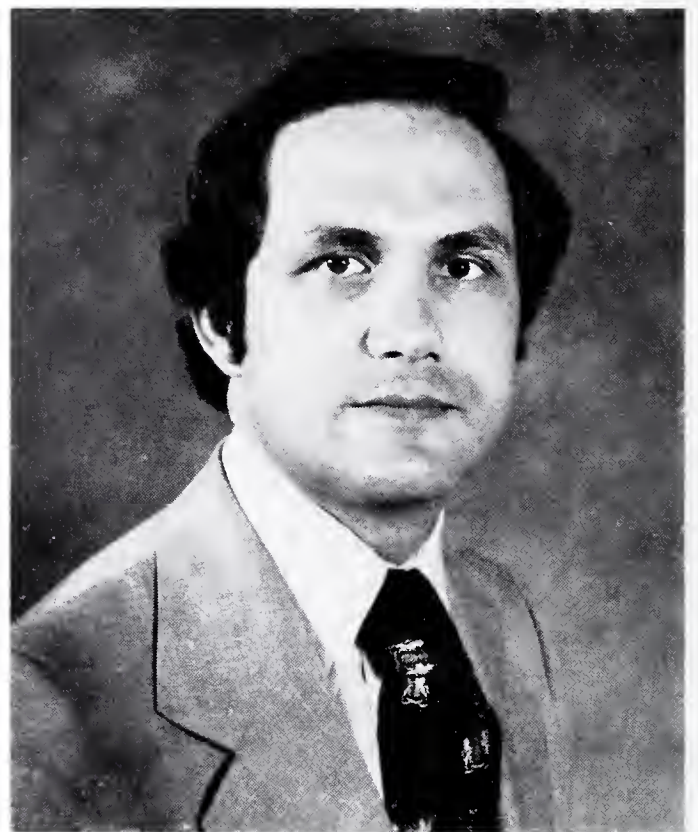
Under the bill, the average federal payment to the states for health care provided to children would rise from the current 55 percent to 75 percent.

Benefits would be extended to children under age six whose family income level makes them eligible for assistance but who do not meet additional state eligibility requirements.

States would be encouraged to assure the availability of comprehensive health providers for low-income children.

President Carter said the CHAP program is "urgently needed to assure that more low-income children receive regular, high-quality primary and preventive care."

* * * *



David L. Lockhart, M.D.
Third District Councilor

NEW OFFICER OF THE MEDICAL SOCIETY

At the 1977 meeting of the Arkansas Medical Society, Dr. David L. Lockhart of Forrest City was elected councilor of the third district. The council is the governing body which serves between meetings of the House of Delegates.

Dr. Lockhart is a native of New Mexico, where he was graduated from Texico High School as class salutatorian. He received his B.S. degree

from Baylor University in Waco, Texas, and his M.D. degree from the University of Arkansas College of Medicine. Dr. Lockhart interned at St. John's Hospital in Tulsa, Oklahoma. He served in the United States Navy at Virginia Beach, Virginia.

Since completing his military obligation, he has been in private practice in Forrest City. He is a Family Practitioner and a Fellow in the American Academy of Family Practice. Dr. Lockhart has received the AMA Physician Recognition Award twice.

Dr. Lockhart is a member of the Rotary and the First Baptist Church in Forrest City. He was chief of staff of the Forrest City Memorial Hospital in 1975. He is a member of the Arkansas Foundation for Medical Care and is currently serving on its Health Care Guidelines and Education Committee.

Dr. Lockhart is on the Baylor University Council for Institutional Development, which is a body officially constituted for the guidance and promotion of the general affairs of Baylor University.

A NEW LINK IN PATIENT CARE—"MIST"

The University of Arkansas for Medical Sciences "MIST" telephone consultation service began operation on January 3, 1977. It is a free telephone service to physicians who wish to discuss medically related problems with UAMS faculty whose specialty is within the field of their inquiry.

"MIST" is a code name for the system "Medical Information Service via Telephone." Simply dial the appropriate number listed below; a special operator handles all calls during the hours of 8:30 A.M. to 4:00 P.M., Monday through Friday. If unable to immediately locate a consultant, she will arrange to secure one, and call back as soon as possible.

The UAMS faculty also uses this "MIST" system to provide follow-up information on patients referred there for evaluation and/or interim treatment.

TOLL FREE TELEPHONE NUMBERS

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Telephone number: 1-800-482-5578

Pulaski County Users "MIST"

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PERSONAL AND NEWS ITEMS

DR. McCRARY CONTRIBUTES

Dr. George A. McCrary was among contributors toward scholarships for junior and senior students at Ouachita Baptist University. Thirty-five students received scholarships of \$500 each.

DR. PINKERTON RETURNS

Dr. Raymond E. Pinkerton has accepted the position of Chief of Anesthesiology at Union Memorial Hospital in El Dorado. Dr. Pinkerton had been Chief of Anesthesiology at St. Joseph Medical Center in Ponca City, Oklahoma, since 1962. Prior to his service in Ponca City, he was in Family Practice in Gurdon for four years.

DR. MIZELLE EMPLOYED

Dr. Joe Mizelle, a third-year resident in Psychiatry at the University of Arkansas Medical

Center, is now employed by Human Services in Perryville and Conway. Through Human Services, Dr. Mizelle provides psychiatric coverage for clinics at the two locations.

DR. HARWELL HONORED

Doctors of Osceola participated in a surprise birthday party for Dr. Mallory Harwell in April. Dr. Harwell flies to Osceola twice weekly to serve as surgeon at the Osceola Memorial Hospital. He is a native of Osceola; the son of the late Dr. C. M. Harwell, Sr., of Osceola. Doctors attending the party were Drs. Eldon Fairley, Julian Fairley, S. Reggie Cullom, and L. D. Massey.

RECEPTION HONORING NEW PHYSICIANS

Judge and Mrs. Milas H. Hale of North Little Rock hosted a reception honoring four new phy-

sicians in North Little Rock: Drs. Roland Anderson, Mohamed Kassam, James Miller, and Kurt Wilhelm.

DR. STOUGH ON PANEL

Dr. D. Bluford Stough, III, was a participant at the 13th Annual Scientific meeting of the American Academy of Facial Plastic and Reconstructive Surgery in Boston, Massachusetts. Dr. Stough discussed office surgery on a panel program and presented a paper on the subject of

hair transplantation. Dr. Stough is a Hot Springs Dermatologist.

DR. ROBINSON VISITS IN TEXAS

Dr. G. Allen Robinson attended the Texas State Medical Society convention in Houston recently.

DR. HOWARD RESIGNS

Dr. Don G. Howard recently resigned his position on the Fordyce School Board in order to devote more time to his Family Practice.



NEW MEMBERS

DR. JERRY C. CHAPMAN

Pulaski County Medical Society has accepted into membership Dr. Jerry C. Chapman of Jacksonville, Arkansas. Dr. Chapman is a native of Tennessee. He received his B.S. degree from Memphis State University and his M.D. degree from the University of Tennessee, Memphis. Dr. Chapman interned at the Methodist Hospital in Memphis, Tennessee.

Dr. Chapman is a Family Practitioner with the Crestview Family Clinic at #2 Crestview Plaza, Jacksonville.

DR. WILLIAM C. FURLOW

Dr. William C. Furlow is a new member of the Faulkner County Medical Society. Dr. Furlow is a native Arkansan and received his Bachelor of Arts in Medicine at the University of Arkansas in Fayetteville. In 1966, he received his M.D. degree from the University of Arkansas College of Medicine. Dr. Furlow interned at the University of Arkansas Medical Center.

He spent two years in Internal Medicine res-

idency and had a fellowship in Cardiology at the University of Arkansas Medical Center.

Dr. Furlow served in the United States Air Force Hospital at Sherman, Texas, 1967-1969.

Dr. Furlow has been in Conway since 1972 and is director of the Coronary Care Unit and Chief of Staff of the Conway Memorial Hospital. He is an Internist and Cardiologist, with his office in the Conway Medical Group Building at College and Dennison. He is board certified.

DR. MICHAEL E. TEDDER

The Craighead-Poinsett County Medical Society has a native Arkansan as a new member. Dr. Michael E. Tedder is in Family Practice at 801 Osler Drive in Jonesboro. He was graduated from Arkansas Tech in 1970 with a Bachelor of Arts degree and in 1974 he received his M.D. degree from the University of Arkansas College of Medicine.

He interned at St. Vincent Infirmary and was in general surgery residency at the University of Arkansas Medical Center for six months. He spent six months at Paragould as part of the Area Health Education Centers program.

He is chief of Emergency Room Care of the Craighead Hospital in Jonesboro.

DR. WALTER D. HARRIS

Dr. Walter D. Harris has been accepted into the membership of the Washington County Medical Society. He is associated with the Orthopaedic-Neurological Clinic, 2907 East Joyce, in Fayetteville.

Dr. Harris received his B.A. degree from Baylor University in Waco, Texas, and his M.D. degree from the University of Arkansas College of Med-

icine. Upon graduation, he went to St. John's Hospital in Tulsa for his internship and one year of residency training.

Dr. Harris served in the United States Air Force from 1970 until 1976 and was in residency training at Wilford Hall United States Air Force Medical Center in San Antonio, Texas, for four years. He was on the staff of the Carswell Air Force Base Hospital in Fort Worth for one year.

Dr. Harris is associate clinical professor of orthopaedics at the University of Arkansas College of Medicine. He is board certified by the American Board of Orthopaedic Surgeons.

DR. WILLIAM C. MARTIN, II

Dr. William C. Martin, II, is a new member of the Washington County Medical Society. He is a native Arkansan and is associated with the Fayetteville Diagnostic Clinic, at 675 Lollar Lane in Fayetteville. Dr. Martin specializes in Gastroenterology and is board certified.

Dr. Martin received his B.A. degree from Hendrix College and his M.D. degree from the University of Arkansas College of Medicine. He was at the University of Arkansas Medical Center for his internship, residency training and a fellowship in Gastroenterology.

Dr. Martin served in the United States Air Force from 1970 to 1972 at Shaw Air Force Base in Sumter, South Carolina. He began private practice in Fayetteville in February 1977. He was on the teaching staff of the University of Arkansas College of Medicine for two years.

DR. J. KENNETH ASTON

Craighead-Poinsett County Medical Society has accepted Dr. J. Kenneth Aston as a new member. Dr. Aston is a native of Jonesboro who received his B.S. degree from Arkansas State University in 1962. In 1965, he received his M.D. degree from the University of Tennessee School of Medicine.

Dr. Aston served a rotating internship and a residency in Radiology at Wilford Hall United States Air Force Medical Center in San Antonio, Texas. He completed a Primary Course in Aerospace Medicine in 1968. He was on the Teaching Staff at Wilford Hall Air Force Medical Center in the Department of Diagnostic Radiology from 1972 until 1974. He was separated from the Air Force in 1974 as a Lieutenant Colonel. He practiced in Georgia for two years following his military service.

Dr. Aston is board certified in Radiology and in Nuclear Medicine. He is Chief of Radiology at Craighead Memorial Hospital, Adjunct Professor at Arkansas State University, and has a teaching position with the Northeast Area Health Education Center of the University of Arkansas School of Medicine.

Dr. Aston's office address is 308 West Monroe, Jonesboro 72401.

DR. MARGARET A. BEQUETTE

The Crittenden County Medical Society has added another member to its membership roll. Dr. Margaret Ann Tipton Bequette is associated with the Crittenden Memorial Hospital in the Department of Radiology and Nuclear Medicine. She was graduated from the University of Tennessee in 1967 and completed an internship and residency at the Methodist Hospital in Memphis.

Prior to moving to West Memphis, Dr. Bequette was on the staff of St. Mary's Hospital in Centralia, Illinois, for five years. She is board certified in Radiology and Nuclear Medicine.

DR. THOMAS B. CALLENDER

Pulaski County Medical Society has accepted into its membership Dr. Thomas B. Callender. He is an Anesthesiologist with the Doctors Hospital in Little Rock.

Dr. Callender received his B.S. degree from Moorhead State University in Minnesota and his M.D. degree from the University of Minnesota Medical School in Minneapolis. He interned at the Tampa General Hospital in Florida and served an Anesthesiology residency at the University of Washington Medical Center in Seattle.

Dr. Callender is board eligible in Anesthesiology.

DR. OTIS H. EDGE

Dr. Otis H. Edge is another new member of the Pulaski County Medical Society. He is a native Arkansan and is associated with the Doctors Hospital at 500 South University in Little Rock as an anesthesiologist.

Dr. Edge received his B.S. degree from the Harding College in Searcy and his M.D. degree from the University of Arkansas College of Medicine. He interned at Camp Pendleton Naval Hospital in California and was in residency training at the United States Naval Hospital in San Diego, California, in Anesthesiology. He is board certified.

THINGS TO COME

Pacemakers for the Primary Care Physician, September 14-17, 1977, Convention Center, Little Rock, Arkansas, sponsored by the Division of Cardiology, University of Arkansas for Medical Sciences. Early pre-registration required, as enrollment is limited. Contact: Mary K. Richards,

M.D., University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72201. This Continuing Medical Education offering has applied for 12 hours of credit in Category I for the Physician's Recognition Award of the American Medical Association.



August, 1977

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 74 No. 3

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma. May be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.



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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council. Arkansas Medical Society, Volume 74, No. 3. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Medical Student Mortality at Arkansas, 1879–1976

Horace N. Marvin, Ph.D.

As part of a major project to codify and to computerize the records of all students enrolled in Arkansas' medical school since its founding in 1879, the cause of termination of enrollment was determined as accurately as possible. One of the reasons for termination was death while enrolled as a student. The frequency and cause of death among medical students seem to be of enough interest that a special report is warranted.

Of the 21 deaths occurring in the 98-year period, the cause was determined in all but three instances. Information was drawn from record books for the early years, death certificates more recently, student records on file in our office, and personal information. As listed in Table 1, accidents were the most frequent cause of death, and three of the seven were recreationally related. All of the

deaths resulting from infectious diseases, the second most frequent cause, occurred prior to 1935.

Of special note is the absence of suicidal death among the eighteen instances for which the cause is known. This finding is in sharp contrast to the results of others¹⁻⁵ who report that suicide accounts for 5-66% of the deaths of medical students. The Arkansas data agree in another way, however, in that accidents, malignancies, and fatal cardiovascular events were the predominant causes of death during the last 40 years.

The age at the time of death ranged from 21 to 45 years, distributed as follows:

21 — 1	25 — 2	30 — 2
22 — 1	26 — 2	33 — 1
23 — 1	28 — 1	45 — 4
24 — 4	29 — 1	Unknown — 4

Nine of the 21 students died during the freshman year, 4 during the sophomore year, 6 as juniors, and only 2 during the senior year. The home residence was known for each of the 18 whose deaths were certified. Almost all students dying prior to 1935 were from homes in small rural communities, but after that date the majority of the group came from large urban communities. Although 1935 also divides the deaths due to infectious disease from those resulting from non-infectious causes, a causal relationship is not implied. A more plausible explanation rests in better medical care and availability of antibiotics effective in controlling infections.

For comparative purposes it is desirable to convert the number of deaths to death rates (deaths/1,000). Table 2 presents the number of deaths during each academic year in which deaths occurred, and the total enrollments for each of those years. The rate calculated for each year varies from 2.3 per 1,000 to the spurious rate of 50.0 per 1,000. This yields a simple, unweighted arithmetic mean of 9.8 per 1,000 for the 18 years listed, also an unrealistic result. Summating the

Table 1
Causes of Death

	Number	% of Known
Infectious Disease	6	33
Pneumonia	3	
Influenza	1	
Encephalitis	1	
Tuberculosis	1	
Malignancy	2	11
Lymphosarcoma	1	
Astrocytoma	1	
Accidental	7	39
Drowning	1	
Car	2	
Plane	3	
Boating	1	
Cardiovascular	2	11
Acute coronary occlusion	1	
Congenital aneurysm	1	
Appendicitis	1	6
Not known	3	

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Table 2
Death Rates by Individual Years

Academic Year	Deaths	Total Enrollment	Deaths/1,000
1879-80	1	20	50.0
1885-86	1	51	19.6
1886-87	1	58	17.2
1899-1900	1	121	8.3
1900-01	1	240	4.2
1901-02	1	219	4.6
1909-10	1	171	5.9
1917-18	1	53	18.9
1924-25	1	136	7.4
1932-33	1	196	5.1
1933-34	1	201	5.0
1936-37	2	298	6.7
1942-43	1	284	3.5
1951-52	2	325	6.2
1952-53	1	322	3.1
1962-63	2	341	5.9
1964-65	1	359	2.8
1972-73	1	432	2.3
98 year total: 21		20,947	1.0

annual enrollment, however, there were 20,947 students enrolled during the 98 years in which the total of 21 deaths occurred, yielding a rate of 1.0 per 1,000 students enrolled.

One of the difficulties in making comparisons over such an extended study is the variation in the manner in which national statistics are reported. Vital statistics in tabular form⁶ were first reported in 1900, but only for 10 states and the District of Columbia. Registering states were added a few at a time until all were included by 1933 when Texas joined the group. The only age grouping reported throughout the period 1900 to 1977 was the deaths per 1,000 white males age 15-24 years of age. The 20-24 year old group is more comparable to the medical student population, but these data were published for only a more recent portion of the period of interest here.^{7,8}

Since the national death rates for the 15-19 year old groups were invariably less than for the 20-24 year old groups, fusing the data resulted in rates

less than those of the 20-24 year old groups alone. Also the national reference data were restricted to white males, although females and Blacks have been enrolled at Arkansas. Since females and Blacks were only 5% and 0.5%, respectively, of the Arkansas cohort, the use of the national white male data for reference could be justified.

Thus for the white male 15-24 year old group, from 1900 through 1973, the national death rate varied from 1.7 to 11.4 per 1,000 with a temporary high in 1918 and again in 1943-1945. The simple, unweighted arithmetic mean was 3.1/1,000 for the period. The rate of 1.0/1,000 for Arkansas' medical students is substantially less.

SUMMARY

In conclusion, a study has been made of Arkansas medical student deaths over a span of many years. Death rate was lower than in a national cohort of white male individuals. Accidents were the commonest cause of dying; no suicidal deaths were recorded during the 98-year period.

Special appreciation is extended to Mr. Robert T. Bailey, Arkansas State Registrar, Division of Vital Records, for assistance in the search of archives dating back to 1880.

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An Outbreak of Aseptic Meningitis in the Area of Fort Smith, Arkansas, 1975, Due to Echovirus Type 4

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INTRODUCTION

In 1975 a cooperative program was undertaken to provide clinical virology service in the state of Arkansas****. The development of this program has facilitated laboratory and epidemiological investigations of illnesses associated with rectal infections. In May, 1975 an outbreak of aseptic meningitis in Fort Smith was reported to the Arkansas Department of Health and the results of the investigation of this outbreak are reported in this paper.

DESCRIPTION OF THE OUTBREAK

The reports of physicians to the Arkansas Department of Health were supplemented by review of records of all patients whose cerebrospinal fluid (CSF) was received for culture at the laboratories of the two major hospitals in Fort Smith — Sparks Regional Medical Center and St. Edwards Mercy Hospital. Descriptions of 99 cases were obtained from emergency room and in-patient hospital records and 41 of the patients also had personal or telephone interviews concerning epidemiologic features of the disease.

Most cases had mild prodromal symptoms, nausea and vomiting (50%), diarrhea (3%), sore throat (4%), and fever (100° to 102°, occasional of 104°) for one to several days, followed by the sudden onset of severe headache (98%). They usually came to the hospital during the first day of headache and were found to have mild or moderate nuchal rigidity (55%) and often photophobia (24%). Eleven percent had chills or sweats. Two patients had a rash.

Sixty-four patients had fever, headache and CSF pleocytosis (greater than 5 leukocytes per mm³).

CSF leukocyte counts ranged from less than 5 (in 8 patients) to 864 per mm³. Fifty-five percent had CSF protein levels of 45 mgm% (range 15 to 86) and all CSF glucose levels were above 58 mgm%. In the first two days of headache about three-fourths of the cells in the CSF were neutrophils; the few counts performed later showed 100% mononuclear cells. Thirty-three had severe headache and fever or stiff neck but did not have lumbar punctures. Most patients had a normal leukocyte count and liver function tests, when done, were normal. Typically hospitalized cases were afebrile on the second or third day and discharged by the fourth day.

Fifty-one of the cases lived in Fort Smith and the remainder over an area about 100 by 60 miles. Cases in May and early June were scattered among small towns outside of Fort Smith (Fig. 1). The outbreak peaked in Fort Smith the second week in June but was more gradual in the surrounding area (Fig. 2). By mid-August, no further cases were reported within the city. The last cases occurred outside of Fort Smith. The oldest case was



Figure 1.
Distribution of cases, aseptic meningitis, Fort Smith Area, AR, May-Sept., 1975, (99 cases)

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AN OUTBREAK OF ASEPTIC MENINGITIS IN THE AREA OF FORT SMITH, ARKANSAS, 1975, DUE TO ECHOVIRUS TYPE 4

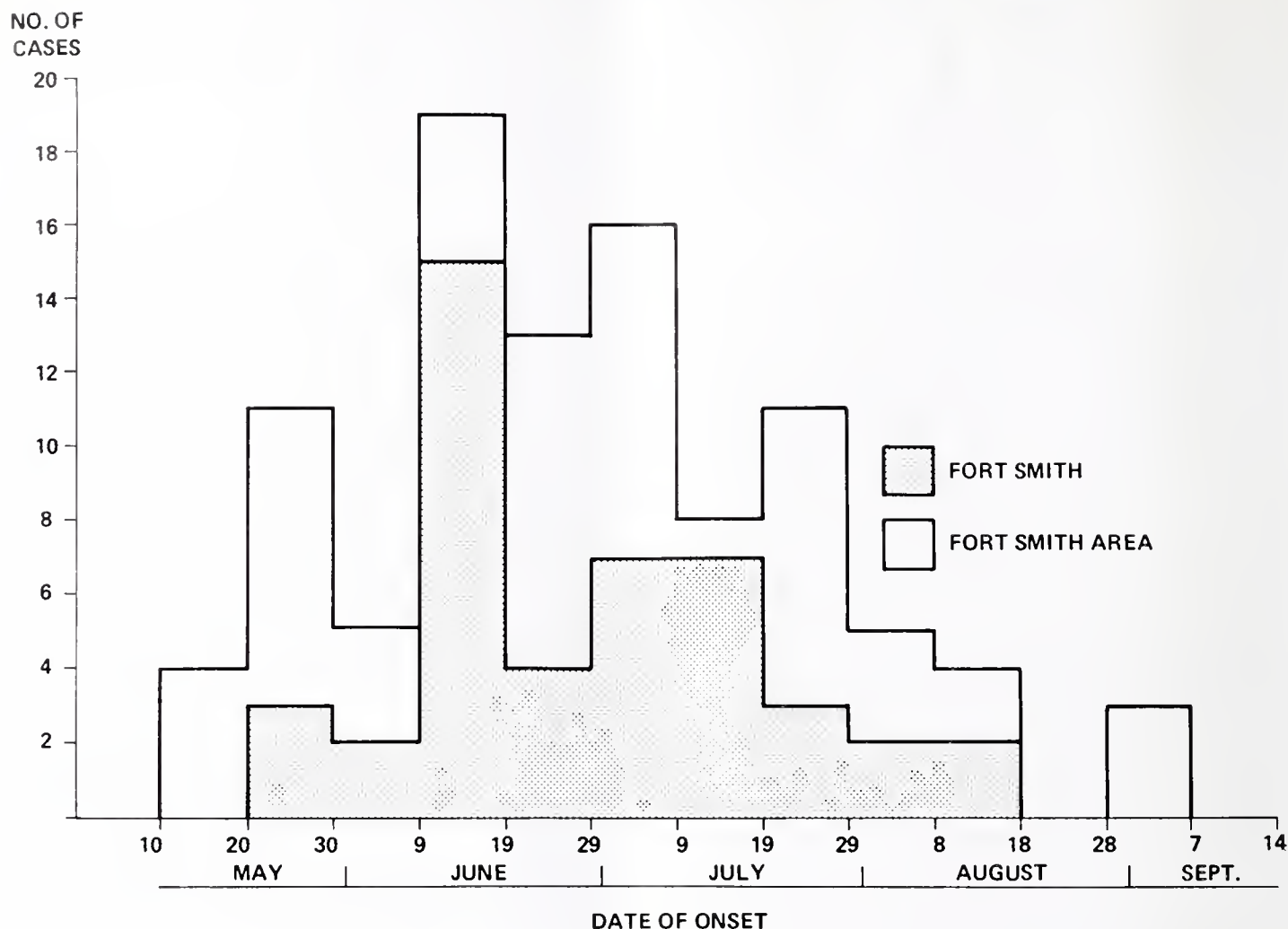


Figure 2.
Dates of onset of cases of aseptic meningitis in the Fort Smith Area, May-Sept., 1975

48 years of age and the youngest was three years, with a peak from 15 to 29 years (Fig. 3). Only 13% were under 15 years of age. Females were affected slightly more frequently than males (55:45).

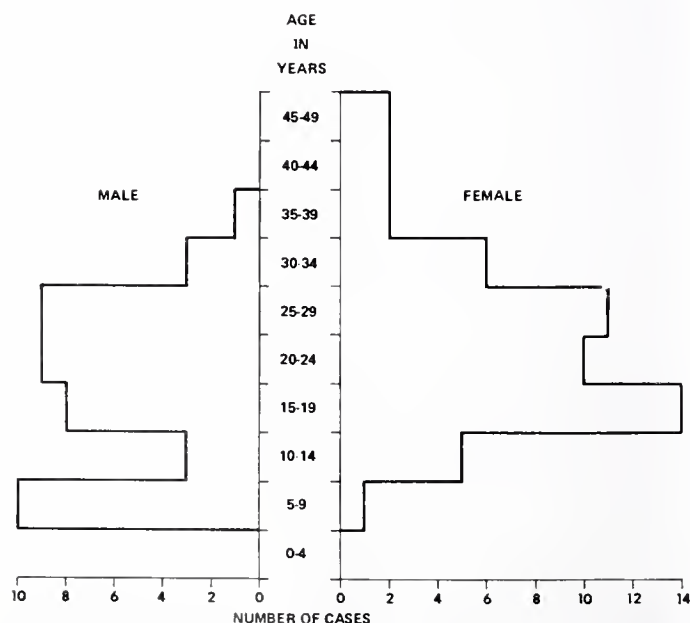


Figure 3.
Age distribution, aseptic meningitis, Fort Smith Area, AR, May-Sept., 1975 (99 cases)

Two families had three cases each, and 51% of family members of other cases had had illnesses with headache within two weeks. Three patients of twenty-five questioned had received blows to the head respectively one day, one week and an unknown but short period before onset of meningeal symptoms. Two of these were described as severe enough to leave a visible contusion or laceration.

VIRAL ISOLATION & IDENTIFICATION DISCUSSION

Throat and rectal swabs collected from patients were placed in tubes containing transport medium. All specimens were frozen as soon as possible after collection and were transported to the laboratory in Little Rock on dry ice. Cerebrospinal fluids (CSF) submitted for bacterial culture at the two Fort Smith Hospitals were frozen at -20°C and later shipped to Little Rock. In some instances transportation to the laboratory was delayed. Swabs and stool specimens were processed according to standard procedures.¹ Speci-

mens were inoculated into cell cultures of primary rhesus monkey kidney provided by Dr. Paul N. Morgan, Clinical Virology Laboratory, Veterans Administration Hospital, Little Rock. Cultures were maintained in Eagle Basal Medium (BME) containing 3% fetal calf serum and gentamicin 50 $\mu\text{g}/\text{ml}$ and amphotericin B 5 $\mu\text{g}/\text{ml}$ and observed regularly for viral cytopathic effect under the microscope. Specimens were considered negative if no cytopathic effect was detected within 13 days of incubation at 37° C. When cytopathology was observed, the material received a second passage. Identification of isolates was performed by the viral neutralization test employing procedures previously reported.² A standard dose of virus suspension was mixed with appropriate dilutions of intersecting reference anti-serum pools (poliovirus types 1-3, coxsackievirus group B types 1-6, coxsackie group A types 7, 9, and 16, echovirus types 1-33, excluding type 8). All isolates identified by this procedure were verified by using monospecific echovirus type 4 anti-serum prepared in a green monkey and provided by Dr. Thomas D. Flanagan, Erie County Virology Laboratory, Buffalo, New York. Simultaneously, specimens from eight cases were studied at the Center for Disease Control. Echovirus type 4 was isolated from seven of these cases. Other than contamination occurring in one specimen, there was complete agreement in the results obtained between the two laboratories.

Virus isolation was positive in 15 cases of 39 investigated in the laboratory (38%). In each case the virus isolated was identified as echovirus type 4. Echovirus type 4 was identified from six CSF specimens, four throat swabs, three rectal swabs and two stool specimens. From three patients an enterovirus was isolated from more than one specimen and the additional isolate was presumed to be echovirus type 4. The isolation rate from the specimens submitted was as follows: (No. pos./No. tested) CSF — 6/27 (22%), throat swab — 4/15 (27%), rectal swab (including two stool specimens) — 8/17 (47%).

In addition to the Fort Smith outbreak, a total of 20 cases of aseptic meningitis were studied in the Virus Laboratory at UAMS in 1975. Echovirus type 4 was isolated from the spinal fluid and throat swab collected from a 10-year-old girl hospitalized at the Arkansas Children's Hospital, Little Rock. In this case the onset date was approxi-

mately 11/24/75. Of interest is the fact that echovirus type 33 was isolated from the stool of a patient in Smackover, Arkansas, and a rectal swab from another patient in Ashdown. The onset of illness in these cases was approximately 9/18/75 and 9/17/76 respectively. From two additional patients, one in Newport and the other in Smackover, an adenovirus was recovered.

Enteroviruses were isolated from other individuals with illnesses other than aseptic meningitis. Echovirus type 9 was recovered from a patient with rash in Saline County and in two instances polioviruses were recovered from individuals with a history of recent polio vaccination. In one case, poliovirus type 3 was identified and in the other all three serotypes were recovered.

DISCUSSION

When eight cases of aseptic meningitis were first reported to the Arkansas Department of Health by a Fort Smith physician in early June, several possible diagnoses were considered. Enteroviruses are the most common cause of such outbreaks, but other possibilities were considered when it was learned that several of the patients had contact with hamsters, a possible source of lymphocytic choriomeningitis (LCM) virus. The presence of thousands of recent arrivals from Vietnam at Fort Chaffee in the center of the affected area raised the question of imported viruses such as dengue or Japanese B encephalitis. These questions were laid to rest within a week by the isolation of echovirus type 4 from seven of the first eight patients studied.

A number of human enteroviruses cause meningitis, including poliovirus and a variety of serotypes of echovirus and coxsackieviruses. The association of echovirus type 4 with outbreaks of aseptic meningitis has been well documented in this country as well as elsewhere in the world.³ In the U.S. during 1975, echovirus type 4 was isolated from a single case of aseptic meningitis in Oregon.⁴ In addition, echovirus type 4 was isolated from seven cases (Texas—3, North Dakota—2, New Hampshire—1, and Missouri—1) at the CDC laboratories. In the South, outbreaks have been reported in Kentucky, West Virginia, Georgia, and Texas.⁵ In 1971, an epidemic of aseptic meningitis occurred in New Orleans and echovirus type 4 was recovered from 61 patients of 166 studied.⁶ Of the 61 patients, the specimens giving the highest yield were throat (88%), stool (87%),

and CSF (75%) — the materials usually of most value in enterovirus epidemics.

Successful virus isolation in studies of such outbreaks depends on a number of critical factors, namely: time of collection of specimens, storage (refrigeration for short periods or freezing), transportation, and techniques used by the laboratory for viral isolation. In our study the number of positive cases, 15/39 (38%) was probably smaller than would be expected. This could be attributed, in part, to the time of collection of specimen after onset of illness but was probably more associated with delay in freezing of the specimens and transportation to Little Rock. Many of the CSF specimens collected in this epidemic had already been submitted for bacteriology and were not ideal specimens for virology after hours or days at room temperature. Despite this, virus was isolated from 6 of 27 CSF specimens.

The epidemic did not spread across the State, but remained localized to the Fort Smith area. This may have been due to differences in previous experience with this virus in different parts of the State, or to other factors. One case of echovirus type 4 associated with meningitis was identified in Little Rock in November, but no other cases involving echovirus type 4 were detected outside the Fort Smith area.

The prolonged time course, geographic distribution and high secondary attack rate within families in this epidemic all point to person-to-person transmission and this is the most likely mode of spread.

The primary control measures taken in the Fort Smith epidemic consisted of isolation of patients during hospitalization and the dissemination of information about the epidemic to the public and the medical community in Fort Smith. A rash accompanied the echovirus type 4 infections very rarely (2%), and this information facilitated recognition of two cases of Rocky Mountain Spotted Fever which occurred at the same time. A case of meningococcal meningitis was also recognized as being clinically more severe and was successfully treated after CSF examination. A check of culture and chlorination records and Fort Smith water supply revealed no cause for concern and cases did not center about any particular swimming area; indeed almost half had not been swimming recently. The investigation was therefore of immediate practical value, demonstrating that

combined epidemiologic and virologic investigation of community outbreaks is of more than academic import.

Most epidemics of meningitis due to echovirus type 4 have affected children more than adults and males frequently outnumber females.⁷ In the epidemic reported here the reverse was true; females comprised the majority (55:45) and very few young children were involved. The average family size of cases was 3.6 compared with the 2.9 listed in the 1970 U.S. Census for Fort Smith, suggesting that individuals living with several children were more at risk than those living alone. If close contact with children was the main mode of transmission, this would also explain the higher attack rate in females of the childbearing age found in this epidemic.

Typically in enterovirus epidemics there are a number of asymptomatic infections and minor illnesses for every case of aseptic meningitis. The factors which determine the outcome of infection are largely unknown other than preexisting antibody and the age and sex of the patient. Minor trauma to an extremity such as from an intramuscular injection may predispose to paralysis of that extremity during an epidemic of poliomyelitis.⁸ The history of head injury in three of twenty-five cases asked this question suggests that trauma to the meninges may tip the balance in favor of meningeal involvement during an infection with echovirus type 4.

The isolation of echovirus type 33 from two cases of aseptic meningitis occurring in Smackover and Ashdown, Arkansas, is worthy of comment. This serotype was originally isolated in Mexico from a normal individual¹ and its role in causing aseptic meningitis or other illnesses has not been established. There are no reports of isolation of this virus as the predominant serotype in outbreaks of aseptic meningitis. The fact that the virus was recovered in our study from stool specimens suggests but does not prove that echovirus type 33 caused the meningitis.

SUMMARY

At least 99 cases of aseptic meningitis occurred in the Fort Smith area of Arkansas between May 12 and September 1975. Echovirus type 4 was isolated from 15 cases of 39 studied virologically, and in six cases from cerebrospinal fluid. Approximately half of family contacts of cases had fever and headache. All available evidence pointed to

person-to-person spread of the illness. Viral isolation, epidemiologic studies and rapid dissemination of information to the medical community were the major public health measures applied.

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The Brown Recluse Spider and Necrotic Arachnidism: A Current Review

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INTRODUCTION

The brown recluse spider is abundant in the southcentral and southeastern United States and several reports indicate that envenomation of man is rather common in these geographical areas. The spider is particularly prevalent in both urban and rural localities of Arkansas, and the opportunity for contact with it is commonplace. Today this spider may create more of a medical problem in these areas than does the black widow spider, *Latrodectus mactans*.

The literature regarding the biology of this spider and the clinical manifestations of human envenomation is not copious, although many excellent papers have been published. However, a single synoptic source of information is not readily available. The following is an attempt to consolidate the current literature into a concise review which may be of interest and aid to the physician.

BIOLOGY OF THE SPIDER

The North American brown spider, *Loxosceles reclusa* Gertsch and Mulaik, is an ecribellate spider of the family *Scytodidae*.¹⁴ There are about 18 species in the genus *Loxosceles* as described for continental North America and the adjacent West Indies. The type species of the genus is *L. rufescens* Dufour. Loxosceline spiders are widely distributed in the temperate and tropical zones of the world.

The brown recluse spider, *L. reclusa*, is a six-eyed spider of medium size.^{14,18} Adults of the species range from about 7 to 12 mm, with an average of 8 to 9 mm. The body and legs appear bare to the unaided eye, but are clothed uniformly with a dense covering of fine procumbent dark hairs and somewhat heavier setae. The body color varies from light fawn to dark brown, although there is considerable variation in coloration. Preserved specimens may become yellow, orange, or reddish. The legs are long and generally darker than the body.

The most distinguishing feature is a dark violin-shaped stigmatum on the anteriodorsal portion of the carapace which narrows to a thin center line extending almost to the abdomen. This characteristic mark accounts for the common name 'fiddleback' being applied to this spider; however, this name could be applied with equal justification to a few other species, viz., *L. laeta*, *L. rufescens*, *L. unicolor*, and *L. arizonica*.

The reclusa group of the genus *Loxosceles* is comprised of about 14 species which make up the natural fauna of the southern United States, Mexico and the major West Indian islands.¹⁴ In the United States, the recognized distribution is as follows: *L. devia* in southern Texas; *L. arizonica* and *L. unicolor* in the arid southwestern states, generally Arizona, New Mexico and southern California; *L. rufescens* in the southeast coast and Texas Gulf coast; and *L. reclusa* in the southeastern and southcentral states, including Tennessee, Kentucky, Georgia, Alabama, Indiana, Illinois, Ohio, Iowa, Missouri, Kansas, Oklahoma, Arkansas, Mississippi, Louisiana, and Texas. *L. reclusa* is most prominent in the southern half of the Missouri-Ohio-Mississippi River basin. A recent report from South Carolina, a heretofore unrecognized area of habitation for *L. reclusa*, would seem to indicate an expanding range.²⁷ This expansion may be more apparent than real in that, due to increased awareness, the species perhaps is merely being found in localities where it has existed covertly all along.

Loxosceles reclusa is an active nocturnal type. The primary natural habitat is considered to be out-of-doors, where they can be found under cover, beneath stones, boards, or other ground objects, and under the loose bark of dead trees. They have been reported to have been found in abundance, especially in winter and early spring, under dry bluffs, beneath the flat rocks that have fallen from above.¹⁸ However, the brown recluse is probably most frequently found about the house and associated buildings, and is commonly regarded as a 'house' spider. It frequents dry locations in human dwellings which are generally undisturbed

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for long periods, such as attics, closets, garages and around piles of rubbish or stored goods. Indeed, it may occupy almost any dry niche which affords seclusion during the daylight hours. Damp areas are not favored by this species, and excess moisture reportedly causes high mortality.¹⁸

Loxoselids weave irregular webs which line their retreats. The web has been described as white, flocculent, and adhesive.¹⁴ This nondescript type of webbing is not elaborate and is not used particularly for catching prey, since the recluse generally forages for insects at night. The spider is not aggressive and usually runs for cover when disturbed.

The species is capable of surviving for long periods of time without food or water, reportedly up to six months.¹⁸ They are well adapted to moderate temperatures found in buildings; indeed, a predilection for temperature range of 23 to 27 C (74 to 81 F) has been observed.¹⁵ However, the temperature range for activity is reportedly about 2 to 44 C (40 to 110 F).¹⁸

A random field collection of adult spiders could expect to yield a sex ratio of 1:2 to 2:3, males to females.¹⁹ Males average slightly smaller in size than females, and can usually be distinguished from females by the bulbous appearance of the pedipalps. The legs of males, especially the first pair, are proportionately longer and thinner than those of females, but without special modifications.

The mating season for the brown recluse spider is reported to be from February to October, with the heaviest period of mating in June and July, and a gravid female may produce from 30 to 300 eggs annually. The incubation period of the eggs varies from 6 to 19 days, depending upon temperature variation. It requires about one year and 10 to 12 molts for the spider to develop into a mature adult.¹⁸

The brown recluse is a long-lived spider. Adult females have a maximum life span of over 1200 days, with an average life span of about one to three years. Female spiders kept in simulated natural habitat, especially regarding seasonal temperature variation, were reported alive after the fifth overwintering.¹⁹ This longevity seems remarkable for such a small animal.

NECROTIC ARACHNIDISM OR NORTH AMERICAN LOXOSCELISM

Necrotic arachnidism in humans was first described in South America and is due to the bite of *L. laeta*.²⁴ It has subsequently been well documented in this geographic area.^{25,26,33}

In the United States, the first case of a bite by a brown spider was reported in 1940.¹⁶ The spider was not identified, but the patient reportedly suffered from a necrotic ulcer and hemoglobinuria. *Loxosceles reclusa* was first suggested as a probable cause of toxic spider bites in 1957.³ It was reported that the venom of the brown recluse spider was a potent necrotizing agent capable of eliciting cutaneous necrosis in mammals. The first actual case report in 1958 described the dermonecrosis at the site of the bite.⁴ There have been numerous case reports since 1960, and in the current literature approximately 152 cases of brown recluse spider bites, with several deaths, are documented.

Loxosceles reclusa is a shy spider and bites only when under stress and forced into intimate contact with human skin. Most bites occur when the individual dons clothing in which the spider has taken refuge or rolls over in bed onto a wandering animal.

The clinical manifestation of the brown recluse bite is variable and depends upon the amount of venom injected and the age and general health of the victim. Both males and females are venomous; however, adult females generally produce a greater quantity of venom probably owing to their larger average size. The average amount of venom obtainable from a single adult female is 0.36 uL,²⁸ but may vary depending upon the mode of collection.³⁴

The spectrum of reactions may vary from a minor temporary irritation to a severe systemic condition that occasionally can result in death. The clinical appearance of loxoscelism has been classified into four groups based upon increasing severity.⁵ In the first group, bites cause only local itching without systemic signs. In the second group, there is a local vesicle with an area of necrosis less than one cm in size. In the third group, the area of necrosis is greater than one cm and there are mild to moderate toxic systemic signs. In the last group, the area of necrosis is greater than four cm, and it is occasionally secondarily infected. Individuals in the last group have defi-

nite systemic symptoms such as hemolysis, fever, hemoglobinuria, disseminated intravascular coagulopathy, occasional renal failure, and shock.

A few generalizations can be made concerning the symptomatology and clinical course of necrotic arachnidism.²⁷ The bite can be relatively painless and may go unnoticed at the time of envenomization; however, a mild stinging sensation occasionally occurs at the time of the bite. In approximately half of the reported cases, the bite occurs on the buttocks, upper thigh, or foot. Local pain is usually the only symptom during the first eight hours following the bite. A particular characteristic of the bite consisting of a blue-gray vasoconstrictive halo which spreads around the puncture site, has been described.¹

After 12 to 18 hours, a bleb develops at the site which is surrounded by a zone of erythema and edema. After five to seven days, the area of the bite progresses to aseptic necrosis, dry gangrenous slough, and eschar formation. The eschar separates from the viable tissue and leaves an open ulcer. In a severe envenomation, a scarlatiniform rash will appear over the affected limb area or trunk. Systemic signs of toxicity including fever, chills, malaise, nausea, vomiting, and arthralgia may be observed. The most serious effects of the brown recluse spider bite occur in children. Cases of massive intravascular hemolysis,³⁸ convulsions,²⁰ disseminated intravascular coagulopathy,³⁷ and death^{23,29,30,32,36} have been reported.

The individual reaction to the bite of the brown recluse varies widely. It has been stressed recently that reactions to the bite may frequently be mild, and many may resolve spontaneously with no scar formation.^{2,7,31} Most individuals who have minor reactions probably do not seek a physician for treatment. In additional cases, the spider is not caught or precisely identified. It may be assumed that the frequency of human envenomation is greater than is delineated in the literature.

An *in vitro* lymphocyte transformation test has been described as an aid in the diagnosis of necrotic arachnidism.⁹ It reportedly becomes positive about four to six weeks post envenomation. This assay would ostensibly be of particular value in cases where the reaction was mild or unusual, and would negate the need to retrieve the spider for identification by the physician. It is interesting to note that a greater rate of lymphocyte trans-

formation was observed in patients with minor reactions to the spider bite.⁷ In contrast, those cases with only minimal lymphocyte transformation had the most severe reactions.

More recently, a passive hemagglutination inhibition test has been reported for the serodiagnosis of *L. reclusa* bites.¹³ This assay reportedly can detect minute amounts of venom expressed from the site of the bite over a 24-hour period. It would appear to be a satisfactory method for early positive identification of brown recluse spider bites.

With regard to the pathology of the lesion produced by envenomation, it has been reported that a complement-dependent infiltration of the site by polymorphonuclear neutrophils was essential for the development of hemorrhage and necrosis in rabbits,³⁵ although mild reactions developed in the absence of PMNs and complement. However, more recent studies have demonstrated that envenomation caused destruction of endothelium, hemorrhage, and thrombus formation which preceded the inflammatory infiltrate and necrosis.⁸ The progressive hemorrhage and dermonecrosis was associated with thrombocytopenia, fibrinogenemia, and prolongation of the clotting time. The suggested sequence in necrotic arachnidism is initial damage to the endothelial cells followed by fibrin formation and platelet thrombi, and finally an infiltration of leukocytes.

The inflammatory infiltrate probably contributes to the extension of necrosis, but it appears to be a secondary phenomenon. The late migration of polymorphonuclear neutrophils may be due to a direct inhibitory action of venom on complement.²²

It has also been reported that eosinophils are a notable aspect of the cellular response early after envenomation.¹⁰ In addition, rabbits with fatal bites exhibited hemorrhagic involvement of the liver, small intestine and other organs.^{4,34}

The treatment of necrotic arachnidism is controversial. Steroid and antihistamine therapy has both its proponents^{1,11,21} and its critics.^{6,7} It has been suggested that early total excision of the lesion and split-thickness skin grafting offered the only successful treatment in cases of severe necrosis.^{5,12,17,21} The use of heparin has also been advocated in severe cases.¹ An antivenin, prepared

in South America, has been used in the treatment of both the local and systemic effects of the bite of *Loxosceles laeta*, but is not available in this country.³³ It appears that definitive therapy for necrotic arachnidism in humans is not presently established.

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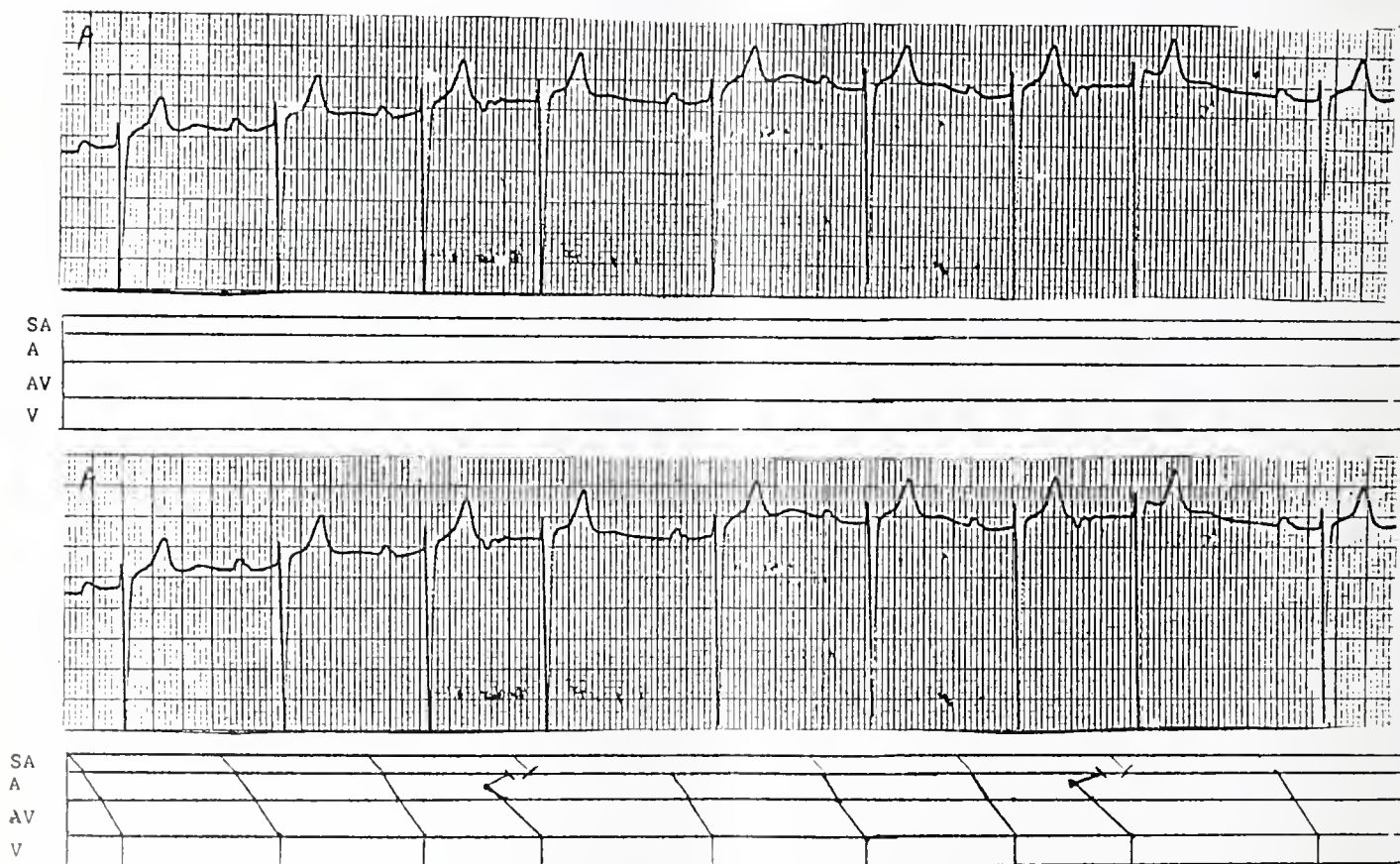
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(See Answer on Page 147)

Diagram the following arrhythmia.



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Obesity — An Enigma of Public Health

Kathleen L. Brown*

The United States Public Health Service has classified obesity as "one of the most prevalent health problems in the United States today." It is estimated that there are between 40 and 80 million obese individuals in the United States.¹ Why are they overweight? Reasons for obesity include acquisition of adipose cells early in life, genetics, endocrine abnormality, faulty functioning of the hypothalamus in regulating hunger, a response to social pressure, stress, lack of basic nutritional knowledge, personal rebellion, emotional problems and environment.

If an improved height-weight relationship can alter morbidity and mortality rates, can certain changes in life style effect such an improvement for certain individuals?

This literary research of the documented observations of professionals working with obesity will hopefully provide some insight into the many faceted makeup. There is general agreement that obesity is defined as more fat than necessary for best body function and overweight is higher than average weight without excess fat.

Obesity has been aligned as a contributing factor, or an associated factor, in many diseases which rate high on any morbidity list — respiratory difficulties, diabetes, digestive diseases, nephritis, hypertension, gall bladder disease — to name a few. It has been accepted as a high risk factor in predisposing an individual to coronary heart disease. In biochemical and psychological checks of a group of 1,694 volunteers for CHD screening, M. Segars and C. Mertens have assembled data that indicate that the role of obesity in this disease needs further clarification. They suggest that "anxiety, depression, and their style of expression are key elements in the relationship that holds

between relative weight and proneness to coronary heart disease."²

Many early studies of efforts in weight reduction have contained numerous variables in operation. Treatment techniques, differences in training and personal characteristics of professionals conducting the studies, and selection of subjects participating are but a few examples of the program differences that make statistical comparisons of those studies difficult. Statistics which show premature termination of the weight reduction program (0.58% among experimenter-managed; and 0.83% among self-managed) and very limited success may be related to the fact that only those resistant individuals who have been unsuccessful in losing independently seek specialized assistance.³

As H. Bruch puts it, "How to stay slim is everybody's preoccupation and supports multimillion dollar businesses for many non-medical agencies. The physician is left to treat those in whom the obvious doesn't seem to work." She says some obese people can lose weight successfully and function well while doing so, while others function better at above the accepted average weight, their weight providing a safeguard against more serious health problems. She would weigh the factors of a "hostile and derogatory culture" against tension and conflicts that may arise from reduction attempts. The ones who suffer most, she says, from these cultural attitudes are those dependent individuals with poor body image, self-doubts, and inadequate self-concepts, while those who have become overweight after reaching adulthood spent a happy childhood thus developing a positive body image. She suggests that the old reproach that obese people have no will power is really the problem of improper programming of their "hunger awareness." They are too depend-

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ent on the outer stimuli, or cues, which are readily available in the home (the cookie jar, the bon-bon dish, the six-pack carton of soft drinks in the refrigerator). Bruch divides overweight people into three main groups, depending on the relationship of the abnormal weight to the whole development: (1) those who developed the excess overweight after adolescence and whose psychological problems, if any, are not weight related; (2) those who grew obese after a traumatic event like the loss of a loved one (reactive obesity) and those whose overweight is interwoven with the whole development dating back to infancy and the ones most likely to have a poor body image; and (3) a group which she terms "thin fat" people who lose weight successfully and maintain the loss but who are still unhappy because the weight loss per se did not bring about the realization of all their fantasies and ambitions.

Studies attempting to describe the personality characteristics of the obese have yielded conflicting results. Some investigators have hinted that the obese are emotionally disturbed; others that they are psychologically sound but are physically unhealthy.⁵ In a variety of tests requiring the subjects to complete sentences, draw figures, select adjectives describing themselves (Adjective Checklist) and indicate personal preferences (Edwards Personal Preference Schedule), R. Wunderlick et al. have found them to score lower than groups classed as normal in achievement, affiliation, dominance, endurance, order, personal adjustment, and self-control and higher than normal for aggression, exhibitionism, heterosexuality, and intraception. This has led the investigators to ask, "Is the obese person fat because of certain characteristics, or are these obese personality characteristics a result of his being fat"?⁵

R. McCall, studying a short-term therapy oriented toward development of self-control techniques, has found that post therapeutically their personality profile has improved as has their ability to lose weight.⁶

The diagnosis and treatment of obesity itself are responsibilities of the physician. He must devise a regimen that will achieve a negative balance of caloric intake and energy output. Medical treatment has made use of diets, drugs, bulk-producing agents, fasting, hypnosis and other psychotherapy, often with undesirable side effects and with unfortunate dropout rate.

Prevention of obesity, the most effective approach to control, has led to recent interest in cellularity. It has been observed by scientists that there are two critical periods for the development of fat cells — birth to two years. With the number of fixed cells established between sixteen and twenty-one years, weight gain results from additional fat on cells. Weight gain of 1/2 pound a week for the first six months is recommended by S. L. Hanar.¹⁰ Even though the fat six-month baby may not be fat adult, the two-to-five year olds are high risks because of established eating patterns.

Since children of overweight parents are possible candidates for obesity, preventive measures — good eating habits and regular exercise — must be initiated early in life. Meyer stresses the role of exercise in weight control. His motion pictures of youngsters in summer camps engaged in various activities show the obese children move about only a fraction of the time that the non-obese children are in motion. He has observed that an increase in activity does not automatically bring about an interest in appetite. He says, "I am convinced that inactivity is the most important factor explaining the frequency of 'creeping' overweight in modern society."⁸

G. Gwinup also favors exercise. He has reported that if walking exceeds thirty minutes a day a weight loss will follow which appears to be mostly a loss of fat since measurements of upper arms of subjects losing weight through this exercise show marked decrease in skinfold thickness. For certain subjects, he ventures, exercise appears to offer an alternative to dieting.⁹

A newer approach to controlling excess poundage which shows promise is behavior modification. This applies to human beings some principles of learning demonstrated in animals by I. Pavlov and B. Skinner. Components of behavior modification programs include "self-monitoring, stimulus control strategies, behavior management methods, imagery techniques, relaxation training, and contingency contracting or self-or-experimenter-administered reinforcement for weight loss."¹⁰

Inappropriate eating habits, say H. Jordan and S. Levitz, can start in infancy when the child may begin to depend upon his environment for cues to start or stop eating. The mother may urge the infant to drink the last drop from the bottle or express approval to the older child who eats

everything on his plate. Taking his mother's approval as a reward, he can respond to the cue of a clean plate as a signal to stop eating rather than the internal cue of satiety. Later, because of the association of his feeling happy when his mother approved his eating, he may turn to eating for satisfying other emotional needs — reduce anxiety, alleviate pain, lift depression, relieve boredom, distract from loneliness, counter fatigue or even enhance happiness.¹¹ Parents, they point out, can also set up inappropriate eating habits by the example they offer in their own eating patterns. The hopeful side of the problem is that a child's maladaptive behavior can be altered by employing the same principles of behavior modification that have been successful with adults, adapting the techniques to the child's needs.¹⁰ The side of the problem which is alarming is that mass data taken from large groups (J. Rimm and A. Rimm) indicate that the fat child's developing severe obesity is substantially greater than that for a non-fat child unless there is purposeful intervention.¹²

Treatment of weight problems should bring about permanent results. To this end, Bellock, et al. have added another technique in self-monitoring to those used earlier by Stuart when he set limits on the way the eating occurs. They have found that pre-behavior monitoring is more effective than post-eating monitoring. For example, recording what and how much one has eaten is a confession or apology. Recording before the eating takes place gives a break between the stimulus to eat and the activity — "a chain-breaking effect." This continued pre-behavior monitoring has been an effective program, they say.¹⁴

L. Levitz and A. Stunkard have noted that the effectiveness of self-help groups increases significantly when behavior modification techniques have been introduced and greater lasting effectiveness is achieved when professionals direct the group than when leaders conduct the therapy sessions.¹⁵

One technique in behavior control, aversive conditioning, pairs an unpleasant stimulus (F. Moss, Unpleasant Sound; V. Meyer and A. Crisp, Electric Shock; W. Kennedy and J. Foreyt, Noxious Odor) with images of desired food normally eaten in excess. This technique has not proved valuable alone. "Combined with other procedures," say Foreyt and Kennedy, "it may help the patient lose weight more easily."¹

Various workers in the field have offered concrete suggestions which those employing behavior modifications in effecting weight control can use as a guide. M. Mahoney and K. Mahoney list seven steps for keeping calories down without focusing on food:¹³

1. Identify the problem. What is wrong — eating too much or the wrong kind of food, or exercising too little.
2. Collect data. Keep accurate record of food intake and physical activity.
3. Point up patterns. The record kept will show whether food exceeds body needs or activity level is too low.
4. Set down possible solutions. A walk instead of a snack, etc.
5. Adopt parts of the solution likely to be successful.
6. Compare present and past living patterns.
7. Continue working patterns. Add others.

Since weight control has become in our society a desirable goal for many, culturally, cosmetically, and/or medically, many approaches have been tried by physicians and by lay persons to bring about this end. Diets — nutritionally adequate diets and fad diets that feature one food element to the exclusion of other important ones — can allow weight loss if there is a negative energy balance, but lasting success has, for the most part, been elusive when focus has been on diet alone. Behavior control is thought by many to offer more hope for continued control than previously used approach. All techniques have depended upon motivation. However, because of the millions of obese people whose excess weight has associated them with unfavorable health factors that can be altered through weight loss, obesity continues as a serious public health problem to be solved.

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EDITORIAL

Beaven on Histamine

Alfred Kahn, Jr., M.D.

Michael A. Beaven has reviewed the topic of Histamine (*New Eng. J. Med.*, Vol. 294, p. 30, Jan. 1, 1976; *New Eng. J. Med.*, Vol. 294, p. 320, Feb. 5, 1976) in considerable detail. This is a most significant article about a so-called biogenic amine. When a tissue is injured, Histamine is released; it is one of a group of chemicals that react similarly which act on smooth muscle, cause edema, and changes in blood pressure. Histamine is of particular interest because it can cause gastric secretion. Histamine is stored in most cells of which there are two types; histamine is carried in the blood by basophils. Histamine can be released by a variety of stimulators including dextran and toxins produced by anaphylaxis. Histamine is derived from Histidine by the action of an enzyme called L-histidine decarboxylase. It has to have pyridoxal phosphate as a co-factor; if pyridoxal phosphate is inhibited, L-Histidine decarboxylate cannot function. Histamine is metabolized by two

routes according to Beaven: methylation and deamination with subsequent conjugation. The body can breakdown Histamine very rapidly and the mode varies in different animal species.

The antihistamines apparently have different effectiveness in different animal species. Furthermore, antihistamines, which are effective in man compared to some other species, vary in effectiveness, depending on the type of allergic reaction. Beaven states that there appears to be Histamine receptors in tissues, and that the antihistamines competitively inhibit Histamine. Two types of Histamine receptors exist: H_1 , which is the so-called classic inhibitor, and H_2 , which is a more recently discovered inhibitor. It has been shown that 2 Methyl Histamine is effective on tissues with H_1 receptors and 4 Methyl Histamine is conversely taken up by H_2 receptors — thus giving a diagnostic tool, which Beaven relates; these chemical differences show that: cardio-vascular

system is affected by H_1 and H_2 receptors; local edema may be due to stimulation of H_2 receptors alone or in conjunction with H_1 .

H_2 receptors pertain to gastric secretion and blocking agents, as burinamide and metiamide may be clinically of considerable value. Secretion can be produced by meat, vagus nerve activity, central nervous system stimulation and by distention. This is mediated by acetyl choline, gastrin, or direct stimulation. Histamine, according to Beaven, may be the final mediator in the sense that it is released by these other agents.

Histamine, as is well known, causes immediate hypersensitivity reactions. There are slower reacting hypersensitivity reactions, which Beaven states might be mediated by prostaglandins, serotonin, and kinins — or a specific slow reacting substance. Beaven has an excellent diagram demonstrating the release of histamine. The first step consists of binding IgE to the cell surface — basophil or mast cell; this he calls an activated cell; this step can be blocked by competitive inhibition by substances like IgE. The second step consists of degranulation, which Beaven says is modulated by cyclic AMP, and cyclic GMP, which act as intra-

cellular agents or messengers, which in turn are acted on by catecholamines, prostaglandins, etc. The exact mode of release of Histamine from the granules of the mast cells and basophils is unknown.

Beaven feels that the research in hypersensitivity reactions has been rewarding since it has had clinical benefits which fit the theoretical schema. He cites that if a patient is exposed to a specific antigen, epinephrine is the best drug to use; antihistamines he describes as a "mixed blessing."

Histamine can now be fairly accurately assayed using radio-isotopes.

Histamine has a possible central nervous system role but it is currently obscure. It is found in the hypothalamus in large amounts. Its use is unknown.

In summary, histamine is described by Beaven as the body's front line defense against noxious agents in the air and noxious agents which might injure the skin. The mechanism of its action and the mode of release have been worked out to a large degree. These studies have real clinical value.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The House has moved swiftly to consider the Administration's sweeping Hospital Cost Containment program that has drawn the wrath of hospitals and physicians.

Joint hearings by the Health Subcommittees of the House Ways and Means and House Commerce Committees are in progress. Devising a bill, however, will take a long time and it could look much different than what the Administration is asking.

Rep. Paul Rogers (D-Fla.), Chairman of the Commerce Health Subcommittee, said in introducing the Administration's bill that "we must

proceed with care in this area." The influential lawmaker questioned whether "any system for controlling the increases in costs of hospital care will work over the long run unless . . . an incentive system is present" to encourage hospitals to hold down increases.

Rep. Dan Rostenkowski (D-Ill.), Chairman of the Ways and Means Health Panel who also dropped the bill in the hopper, told the House that "I am sure there will be serious objections raised to the President's proposal. Some will argue that a cost containment program applying only to hospitals unfairly singles them out and will do

harm to the quality and availability of necessary care."

The House hearings so far have met an almost solid block of opposition from health providers as well as tepid endorsement from labor.

Even more foreboding from the Administration's standpoint is the fact that no member of the health subcommittees of the House Ways and Means and House Commerce Committees took the role of all-out champion of the Administration proposal during the three days of joint hearings. Some lawmakers directed criticism at hospitals and physicians in connection with the inflation in health care costs, but none of the Congressmen seemed enamored of the Administration's scheme for dealing with the problem.

The American Medical Association told the Subcommittees the legislation singles out one segment in the economy for the imposition of special controls by limiting inpatient revenues of most hospitals to approximately a nine percent increase annually. This is similar to the "opprobrious retention" of the "now discredited" wage-price controls to the health field in Phase IV of the economic stabilization program while removing controls from the rest of the economy, said Raymond T. Holden, MD, Chairman of the AMA Board of Trustees.

"The AMA is concerned over the impact that this legislation would have on the quality and availability of hospital care for the American people," said Dr. Holden. "It seems inescapable to us that the 'cap' on spending will result in second rate care, and some care may simply become unavailable for many people."

The American Hospital Association, the Federation of American Hospitals, the American Protestant Hospital Association, the Catholic Hospital Association, and the Association of American Medical Colleges were among other health organizations that weighed against the Administration plan. The Health Insurance Association of America gave "somewhat qualified support" with many reservations. The Blue Cross Association proposed a national moratorium on new plant capital expenditures, but "we seriously question" whether the cap plan would be "effective or equitable."

Thrust of the testimony of the AFL-CIO and the United Auto Workers was that the wage increase "pass through" was inadequate and that a

better approach would be to adopt the labor-backed national health insurance plan — the Health Security Act.

There was no immediate indication of how soon the joint subcommittees would begin work on legislation. Their calendars are chock full of other major business writing such a complicated bill and reaching a consensus will be a lengthy process.

The Chairman of the AMA's Council on Legislation, Edgar T. Beddingfield, Jr., MD, summed up the Association's criticism of the Administration's bill by declaring the plan "does not support incentives for efficiency, perpetuates inefficiency in hospital care, creates a rigid program which in the long run would be unresponsive to improving quality of hospital care, discourages increased access to care, and penalizes institutions which seek to respond to increased community health needs."

Costs in the health sector of the economy do not always react with costs in general, the physician explained. The health care sector is labor intensive, technologically highly sophisticated and staffed by highly trained and educated people.

The revenue "cap" plus the proposed new capital expenditure limitation "would be quite detrimental to individual hospitals which seek to remain in the mainstream of modern medical treatment and care," said Dr. Beddingfield.

The AMA officials urged Congress to postpone any action until the AMA-convened National Commission on the Cost of Medical Care submits its report next January. Drs. Holden and Beddingfield agreed with Rostenkowski that the problem of rising costs is serious, but contended that the Administration bill would compromise the quality of patient care.

* * * *

Somewhat battered by its treatment in the House, the Administration moved its "cap" proposal to the more friendly environs of the Senate Human Resources Subcommittee on Health headed by Sen. Edward Kennedy (D-Mass.).

At the outset of Senate hearings on the Administration's principal health proposal of the year, Kennedy said the Administration's bill "is not perfect — but it is a starting point." Declaring he has a number of reservations about it, Kennedy nevertheless said "a transitional cost control program is needed. A program that is administrative, simple, doesn't create a new bureaucracy, and will result in significant savings."

The Massachusetts Senator put in his customary plus for labor's Health Security Act as "the only viable solution to the health care crisis in America," but he noted that this bill would require "a substantial lead time to implement."

The ranking Republican member of the Subcommittee, Sen. Richard Schweiker (R-Pa.), said "our job is to decide if the Administration's temporary adjustment is a better approach than any number of long range overhauls already pending before the Congress." He said "I still have some basic questions about the wisdom and the practicality of this approach."

Sen. Kennedy picked Georgetown University Hospital (Washington, D.C.) as an appropriate if off-beat site for the first Senate hearings on the controversial "cap" program.

Though the University proved a gracious host for Kennedy's health subcommittee, and hospital personnel were excited about the presence of big-name Senators and Administration officials, the chief administrator of the hospital took the opportunity to tell Kennedy some of the facts of life about running a hospital and why the Administration plan would be burdensome.

Kennedy had noted in opening the hearing at the hospital auditorium that "I have counted on this hospital many times in the past when my own family so desperately needed medical care."

Charles O'Brien, GU hospital administrator, told the Subcommittee as one of its witnesses that the impact of the proposed cost-containment legislation "will be to freeze at the current state the developments or expansion of new treatment courses."

"The program is administratively unworkable and entirely too complex to be equitably applied," O'Brien testified.

Joseph Califano, Secretary of Health, Education and Welfare, said the hospital system is "obese". What the Administration is asking of hospitals, Califano testified, "is that instead of having five pieces of chocolate cream pie for dessert they try to hold it to one."

Califano offered few new details but insisted that hospital cost controls cannot await national health insurance.

The American Hospital Association renewed its strong opposition to the Administration's plan. AHA Senior Vice President Leo Gehrig, MD, said "this bill is inequitable in design, wrong in con-

cept, and impossible to administer. We believe that its enactment would seriously jeopardize the present and future ability of hospitals to provide quality care to the American people."

According to Gehrig, "these controls are wrong because they would operate through a formula that continuously screws down increases in hospital revenues so that in the future they would be limited to a rate about equal to the rate of general inflation. Such an approach would eliminate all ability to incorporate improvements in care and fail even to keep up with the known rate of inflation in the hospital market basket.

AMA spokesman Jere W. Annis, MD, and William C. Felch, MD, in testimony before the Senate subcommittee also attacked the Administration's "cap" proposal (dubbed the "nine percent solution" by Capital Hill wags) with arguments basically similar to those used earlier before the House subcommittees.

* * * *

The chief rival to the Administration's bill is the so-called Talmadge measure drafted by the Senate Finance Subcommittee on Health headed by Sen. Herman Talmadge (D-Ga.). This bill, which was brought up for hearings last year, institutes a prospective reimbursement system for hospitals for Medicare and Medicaid with classification by type of institution and by region and includes many incentive and punitive provisions aimed at costcutting. Significantly, the bill was introduced in the House recently by Rep. Paul Rogers (D-Fla.), Chairman of the House Commerce Health Subcommittee. Rep. Dan Rostenkowski (D-Ill.), head of the Ways and Means Health Panel, hasn't said which way he's leaning.

Introducing his long-awaited Medicare-Medicaid measure, Sen. Talmadge told the Senate of his "uncertainty over the wisdom of a cap on hospital revenues" — thus raising what many believe to be a storm warning.

Talmadge, influential Chairman of the Senate Finance Subcommittee on Health, insisted his comprehensive bill was not a rival of the Administration's. But the questions he raised about the Administration's legislation made clear that the nine percent cap plan on all hospital revenues faces tough sledding in the Senate. The plan, Talmadge said, could "cause such chaos within the hospital field as to cancel the dubious savings involved.

Nineteen Senators from both parties co-sponsored the Talmadge measure. They included Sen. Russell Long (D-La.), Chairman of the full Finance Committee.

Of the four major health subcommittees in Congress, only the Finance Subcommittee has not scheduled hearings to date on the Administration cap proposal which embraces all hospital functions, not just those involved with federal aid programs.

* * * *

The American Medical Association has told the House Commerce Subcommittee on Oversight and Investigations that a second opinion "is just that and nothing more — an opinion which is, by definition, subjective and it can never be anything other than that," asserted James H. Sammons, MD, AMA Executive Vice President.

The Subcommittee, headed by Rep. John Moss (D-Calif.), has engaged in a running controversy with medical groups since it issued a report a year ago implying there are many thousands of deaths due to unnecessary surgery. The issue has stirred calls on Capitol Hill for required second opinions and suggestions for establishing criteria for determining under Medicare and Medicaid the necessity of surgical procedures and which should be elective.

Dr. Sammons said "such an approach is contrary to sound medical practice."

"It is not the disease which determines whether the procedure is an emergency but rather the condition of the patient and the time and circumstances under which the patient is seen by the physician," said Dr. Sammons. The AMA official said an approach based on disease categories with hard and fast rules which allow for no variation "is not medically sound or in the best interest of the patient."

The AMA supports efforts to control costs "that do not sacrifice the interests of the patient to the interest of some abstract cost-benefit ratio," Dr. Sammons testified.

Dr. Sammons' appearance before the Subcommittee was delayed for a week because of a dispute over the timing of delivery of AMA testimony to the Subcommittee. Despite strong words that have been exchanged between Subcommittee Chairman Moss and the AMA over the unnecessary surgery issue, Moss did not level any broadside charges at Dr. Sammons' testimony. However,

Reps. Anthony Moffett (D-Conn.), Henry Waxman (D-Calif.), and Andrew Maguire (D-N.J.) had sharply critical remarks about the AMA.

Much of the debate centered on the frequency of hysterectomies in this country. Waxman asked if it is "a fad operation"? Moffett said the AMA had displayed "callousness, chauvinism and insensibility" to surgery on women. Maguire shouted that there is "something wrong" because the AMA "fails to address the issue" of people dying unnecessarily from surgery.

Dr. Sammons vehemently denied the charges. The AMA has no desire to protect the guilty and the incompetent, he asserted. The question of what is necessary or unnecessary, what is wrong, must be decided at the peer review level, Dr. Sammons said. "I am certain in my own mind that there is surgery performed every day that I would not personally agree with, but that is true of all aspects of every profession," said the AMA official. The number of such cases would be very small, he stressed.

* * * *

A dash of scholarly cold water was thrown on the flaring dispute in Congress over whether there is too much surgery performed in this country.

A news conference was held in Washington, DC, by the Office of Health Policy Information at the Harvard School of Public Health to introduce a new book, "Costs, Risks and Benefits of Surgery." One of the studies in the book said that present costs and risks of surgery "appear to be equal, or nearly equal to benefits."

Elective hysterectomy, a subject which has drawn much fire from members of the House Commerce Subcommittee on Investigations, raises the question of quality-of-life benefits, the book states. "It cannot be assumed that easy answers can be provided," it adds. "The individual patient may consider that the quality-of-life benefits of hysterectomy are sufficient to offset attendant risks; indeed, based on the extremely high hysterectomy elective rates reported for physicians' wives, who should be reasonably informed 'consumers', it seems likely that many women will make this choice."

However, the book goes on, if and when society agrees to make "necessary" medical care available to every citizen as a right, "at issue will be the allocation of public funds for a procedure when it appears to be more of a convenience or luxury

than a necessity, and in competition with growing demands for funds to pay for other medical procedures, many of which may present stronger claims."

The book was written by Benjamin Barnes, MD, Associate Professor of Surgery at Harvard Medical School; John Bunker, MD, Professor of Anesthesia and of Family Community and Preventive Medicine at Stanford University; and Frederick Mosteller, PhD, Chairman of the Department of Biostatistics at the Harvard School of Public Health. All three authors were present at the news conference as was Howard Hiatt, MD, Dean of the Harvard Public Health School, who wrote the foreword to the book.

* * * *

The threat of Federal Trade Commission direct jurisdiction over non-profit associations such as medical organizations has been blocked in Congress.

The House Commerce Committee by voice vote rejected the proposal. The Senate Commerce Committee approved a bill that had been stripped of a similar provision following subcommittee adoption. The non-profit association provision was part of a broader measure extending FTC powers and penalties that was okayed by both committees.

At present, the FTC, which is currently engaged in a wide-range of cases against medical-health groups including the AMA, must prove in court that it has jurisdiction over non-profit association on grounds the challenged activity resembles a commercial activity and operates for the economic benefit of the members of a non-profit association.

This has proved a legal obstacle to some FTC actions against non-profit associations in the past. The FTC had urged Congress to adopt the plan. However, the AMA and a host of other non-profit associations argued that the new powers would give the federal agency more authority than Congress had intended as an instrument against unfair business practices. The effect would have been to lump all activities of non-profit groups in the same legal boat as those of commercial businesses.

Despite its victory in blocking the inclusion of non-profit organizations under the same flag as commercial business, the AMA and others will support a floor amendment to block a committee-passed section of the legislation that would

authorize class action suits (by private individuals) for violations of FTC rules.

* * * *

The American Medical Association and the American Hospital Association were criticized by Health, Education and Welfare Secretary Joseph Califano for opposing the Administration's hospital cost containment plan.

Califano said the two organizations "have opposed virtually every progressive step in the health care area, every step for the government to become the catalyst and further expand service to the poor and needy."

In an interview with the *Washington Post*, the HEW Secretary said the major obstacles to Congressional passage of the Administration hospital control plan are the AMA and the AHA. "They're very effective and strong lobbyists," he was quoted.

Califano predicted that despite opposition the plan will clear the House within a few months, but he conceded it faces "a more difficult" fate in the Senate.

Spokesmen for the AMA and the AHA denied Califano's charges of opposing progressive health measures. They noted support for expanded health programs covering everyone through private health insurance. The hospital control program won't work and could damage the quality of health care, they said.

Califano also told the *Washington Post* that hospitals should take a tougher line negotiating with hospital-based specialists who "get a percentage of the gross" income of their departments. "That's like the entertainment business," he said. "This is not the entertainment business."

* * * *

Health, Education and Welfare Secretary Joseph Califano has expressed "deep regret" to the AMA at "the significant number of errors" in the March 12 publication of names of health providers whose 1975 Medicare income surpassed \$100,000.

"I am deeply distressed at the number of errors, and I regret any embarrassment that may have been caused to any of your individual members," Califano said in a letter to James H. Sammons, MD, AMA Executive Vice President.

Following the original publication of the list, the AMA and some state medical societies checked 208 of the 407 physicians on the list and found an

error rate of 64.9 percent. Dr. Sammons urged an apology for the mistakes.

Califano said he has asked Robert Derzon, Administrator-Designate of the new Health Care Financing Administration, to review the entire matter with the view toward taking whatever actions are necessary to prevent a situation like this from arising again.

* * * *

The influential and liberal *Washington Post*, commenting on President Carter's remarks before the United Automobile Workers annual meeting concerning delay of national health insurance, said in an editorial that the President's declaration that the government cannot afford to do everything was "dead right".

Said the Post:

"We also think it would be the final and complete ruination of liberalism — whatever that may mean anymore — if its self-professed minions refused to face up to the difficult domestic choices and just kept on asking for it all."

Asked the Post in an editorial that will have repercussions in the nation's capital:

"Is the intervention of government in peoples' lives, even for a benign purpose, always so benign in the way it works? Have we not learned that there can be a streak of ugly authoritarianism in even the most well-intended government programs? Can liberals afford to be as contemptuous as they traditionally have been of those who regard inflation as the principal public enemy?"

The editorial said these are questions serious-minded Democrats should be thinking about now — "not whether it is illiberal of Jimmy Carter to have delayed the prospective introduction of national health insurance until early in 1978."

* * * *

STATE BOARD HEARING ON TRAINED MEDICAL ASSISTANTS

Notice is hereby given that the Arkansas State Medical Board will meet at 1:00 P.M., Thursday, September 1, 1977, in Little Rock, Arkansas, at the Little Rock Convention Center to consider the adoption of following proposed regulations:

PROPOSED REGULATIONS GOVERNING PHYSICIAN'S TRAINED ASSISTANTS

1. A Physician's Trained Assistant must possess a certificate issued by the Arkansas State Medical Board prior to engaging in such occupation.

2. A Physician's Trained Assistant must be a skilled person, qualified by academic and clinical training, to provide patient services under the supervision and responsibility of a physician. The physician employing the Physician's Trained Assistant shall be responsible for the performance of the Physician's Trained Assistant.

3. The work of the Physician's Trained Assistant shall be done under the supervision of a physician who retains responsibility for patient care, although the physician need not be physically present at each activity of the assistant nor be specifically consulted before each delegated task is performed. The Physician's Trained Assistant may be involved with the patients of the physician in any medical setting within the established scope of the physician's practice, not prohibited by law. The Physician's Trained Assistant's service may be utilized in all medical care settings, including the office, the ambulatory clinic, the hospital, if approved by the hospital medical staff, the patient's home, extended care facilities and nursing homes. Diagnostic and therapeutic procedures common to the physician's practice may be assigned after demonstration of proficiency and competency is made by the Physician's Trained Assistant.

4. The Physician's Trained Assistant certificates shall only be issued by the Arkansas State Medical Board upon application by both the employing physician and the Physician's Trained Assistant.

- (a) The physician's application shall disclose the professional background, specialty, and scope of practice of the physician, a description of the physician's practice and the way in which the assistant is to be utilized, and such other information as the Board may require.
- (b) The Physician's Trained Assistant's application shall disclose the qualifications, including the related experience possessed by the Physician's Trained Assistant, and such other information as the Board may require.

5. The Physician's Trained Assistant must have the following qualifications:

- (a) Successfully passed an examination for Physician's Assistants prepared by the National Board of Medical Examiners and certified by the National Commission on Certification of Physician Assistants; and
- (b) Have successfully completed a course of

study in a curriculum for training of Physician Assistants offered by a school or institution accredited by the Council on Medical Education of the American Medical Association or possess a current license as a Registered Nurse or Licensed Practical Nurse issued by the Arkansas State Board of Nursing; and

- (c) Have successfully completed a one year program of practical training of Physician's Trained Assistants established by a hospital accredited by the State of Arkansas, which program shall have been approved by the Arkansas State Medical Board.

6. A Physician's Trained Assistant employed in an academic position in an institution devoted to the health sciences shall be the responsibility of the dean or his physician designate of the appropriate college or university.

7. All educational and/or experimental programs for Physician's Trained Assistants operating beyond the physical confines of educational institutions in the medical sciences shall obtain approval of the Arkansas State Medical Board before initiating such programs. Applications for approval shall:

- (a) Identify all personnel (student, instructor, physician, etc.) involved;
- (b) Specify the locations, facilities, content, and purpose of such program;
- (c) Furnish job descriptions and duration of program;
- (d) Other information as the Board may require.

8. The Board shall not approve an application for any one physician to supervise more than two Physician's Trained Assistants at any one time.

9. Certificates of a Physician's Trained Assistant shall not be transferable to a different employing physician, except by proper application and approval of the Arkansas State Medical Board. The certificate shall be displayed prominently at the assistant's office of employment and shall bear a seal issued by the Board indicating approval for the current year.

10. Physician's Trained Assistants may perform routine visual screening, pre-operative or post-operative care or assistance in the care of diseases of the eye as done under the supervision of an ophthalmologist.

11. A registry of the qualifications of the Phy-

sician's Trained Assistant and the employing physician shall be kept in the office of the Arkansas State Medical Board.

12. Initial certification shall be for one year and renewed annually on that anniversary date. Recertification and review of the Physician's Trained Assistant, the employing physician and his practice shall be made prior to renewal of the certificate.

13. A fee of Twenty-Five Dollars (\$25.00) shall be charged for each initial certification as a Physician's Trained Assistant. Annual renewal fee shall be determined by the Board. The physician employer shall pay Ten Dollars (\$10.00) for the initial application but shall not be charged for annual renewals. Additional charges will be made for examination.

14. A Physician's Trained Assistant must:

- (a) Clearly identify himself to the public and the patient as an assistant to a physician by the display of an appropriate designation, i.e., badge, nameplate, with "Physician's Trained Assistant" appearing thereon.
- (b) Function only under the direct supervision of a licensed physician. Independent health care by a Physician's Trained Assistant shall not be permitted.
- (c) Be prepared to demonstrate, at the request of the Board, satisfactory ability to perform those tasks assigned to him by his employer-physician.
- (d) Pay such fees as are required by the Board for expenses incurred in the evaluation of his qualifications and his continuing performance.

15. The supervising physician shall sign all prescriptions for controlled substances. Prescriptions for all other legend drugs may be signed in the name of the supervising physician by the Physician's Trained Assistant who shall also sign the prescription identifying himself as the actual signer. (For example, the prescription may be signed John Doe, M.D. by Joan Roe, Physician's Trained Assistant.)

The Physician's Trained Assistant may administer drugs outside the physical presence of the supervising physician but may not dispense either legend drugs or controlled substances except that after administering a drug to a patient the Physician's Trained Assistant may leave with the pa-

tient an amount of indicated drugs sufficient to last the patient until medication can be obtained from a licensed source.

16. All bills or statements for fees rendered by the Physician's Trained Assistant shall be in the name of the supervising physician. The supervising physician and the Physician's Trained Assistant may enter into such an agreement as they consider just respecting the accounting by Physician's Trained Assistants for cash fees collected by the Physician's Trained Assistant. The Physician's Trained Assistant must obtain and have in force at all times a malpractice insurance policy issued by an insurance company approved by the Department of Insurance of the State of Arkansas in the minimum amount of \$10,000.00.

17. The Board may revoke or suspend an existing certificate issued to a P.T.A. or may refuse to issue a certificate in the event the holder thereof or the applicant therefor has committed any of the acts or offenses described in *Ark. Stat. Ann.* §72-613 or the Regulations of the Board as unprofessional conduct. Procedure in all disciplinary matters shall be as provided by *Ark. Stat. Ann.* §72-614.

The P.T.A. to the general or primary care practitioner including the family practitioner may perform the following tasks and procedures:

1. Receiving patients, obtaining case histories, performing an appropriate physical examination, and presenting meaningful resulting data to the physician;
2. Performing or assisting in laboratory procedures and related studies in the practice setting;
3. Giving injections and immunizations;
4. Suturing and caring for wounds;
5. Providing patient counseling services; referring patients to other health care resources.
6. Responding to emergency situations which arise in the physician's absence within the assistant's range of skills and experience; and,
7. Assisting the employing physician in all settings such as the office, hospitals, extended care facilities, nursing homes, and the patient's home.

The public is invited to attend and be heard relative to these proposals. In the event attendance is impossible, written statements of approval or disapproval may be submitted. The statements should be mailed to Joe Verser, M.D., Secretary, Arkansas State Medical Board, Post Office Box 102, Harrisburg, Arkansas 72432.

BY ORDER OF THE STATE
MEDICAL BOARD

SIGNED:

Joe Verser, M.D., Secretary



THINGS



**TO
COME**

SEPTEMBER 7-9, 1977

The American Cancer Society announces the Second National Conference on Human Values and Cancer on September 7-9, 1977 at the Palmer House in Chicago, Illinois. This conference will explore the impact of cancer on the patient, the family and the professionals who treat the patient. Emphasis will be placed on interpersonal relationships, rehabilitation, employability, insurability, the patient's right to know his diagnosis and prognosis, his spiritual needs and his hopes for dra-

matic cures. Experts from various disciplines will cover these areas.

Attendance is open to all members and students of the medical and related health professions as well as to laymen interested in understanding the changing role the cancer patient is assuming in our society due to the major advances achieved in diagnosis and treatment during recent years.

Advance registration is requested. There is no registration fee. For further information, write: American Cancer Society, Second National Conference on Human Values and Cancer, 777 Third Avenue, New York, New York 10017.

SEPTEMBER 14-17, 1977

The Division of Cardiology at the University of Arkansas College of Medicine is sponsoring a nation-wide seminar on Pacemakers for the Primary Care Physician, September 14-17, 1977, at the Convention Center, Little Rock, Arkansas. Early pre-

registration required; enrollment is limited. Application has been made for 12 credit hours in Category I for the Physician's Recognition Award of the American Medical Association for this program.

OCTOBER 30 - NOVEMBER 3, 1977

The 43rd Annual Scientific Assembly of the American College of Chest Physicians will be held at the MGM Grand Hotel in Las Vegas, Nevada, October 30 - November 3, 1977. The theme for the 1977 meeting is "Cardiopulmonary Medicine and Surgery: Current Perspectives and Future Frontiers". Two new teaching techniques for the meeting have been developed. They are: (1) Clinical Colloquia - Twenty special 1½ hour sessions designed to give registrants an opportunity for in-depth study on a specific topic; (2) Self-Assessment on Sounds of the Chest—This is a continuous session on sounds of the chest with self-assessment.

Two postgraduate courses will be held in conjunction with the ACCP scientific assembly. "Management of a Respiratory Therapy Service" will be presented on Sunday, October 30, with Drs. Richard Browning and Ronald B. George as course directors. The second course "Cardiopulmonary Technology Today" will be held Monday, October 31st, with course directors Kenneth M. Moser, M.D. and Virginia A. Burleson, RCPT.

For further information, including registration materials, please contact: Dale E. Braddy, M. S., Director of Education, American College of Chest Physicians, 911 Busse Highway, Park Ridge, Illinois 60068.

NOVEMBER 3-6, 1977

The Division of Cardiology at the University of Arkansas for Medical Sciences is sponsoring a nation-wide cardiovascular stress testing seminar at the Convention Center in Little Rock, Arkansas. The planned dates of this seminar will be November 3, 4, 5, and 6th; with didactic sessions primarily on the 3rd and 4th of November and laboratory sessions on the 5th and 6th.

The course will involve 10 to 12 hours of didactic sessions beginning Thursday evening, November 3rd, and extending through Friday, November 4th. On Saturday, groups of physicians and technicians will be divided into four major laboratory experiences: (1) Stress testing each other. (2) Observing pre-recorded abnormal stress derived from past results of University patient test-

ing. (3) Review of cardiopulmonary resuscitation. (4) Evaluating and comparing exhibits of stress testing equipment.

Following these activities, there will be question and answer sessions, discussions and final exam on Sunday morning.

Early pre-registration is required as enrollment is limited. Contact: John E. Douglas, M.D., University of Arkansas College of Medicine, 4301 West Markham, Little Rock, Arkansas 72201.

This Continuing Medical Education offering meets the criteria for 12 hours of credit in Category I for the Physician's Recognition Award of the American Medical Association.

NOVEMBER 6 - 9, 1977

The Southern Medical Association will hold its 71st Annual Scientific Assembly at the Dallas Convention Center on November 6-9, 1977. Postgraduate Courses offered at that time will be Improved Techniques for Managing Problems of Infertility, 6 hours; The Medical Aspects of Sexual Dysfunction, 6 hours; Diarrhea and Jaundice: Current Concepts and Clinical Considerations, 6 hours; Care of the Multiple Injured Patient, 6 hours; Pearls in Anatomic Pathology, 3 hours; Morphologic Hematology - Bone Marrow, 3 hours; Management of the Actinically Damaged Skin, 2 hours; Treatment of Warts, 2 hours; Respiratory Therapy, 3 hours; Day-to-Day Problems in Diabetes, 6 hours; ENT Emergency Care for the Non-Otolaryngologist, 6 hours; Dermatology for the Non-Dermatologist, 6 hours; Current Treatment in Neurology for Primary Physicians, 3 hours; Pediatric Urology, 6 hours; Treatment of Hand Injuries, 2 hours; and Pediatric Dermatology, 4 hours.

All courses are fully credited by the Council on Medical Education of the American Medical Association and are acceptable for hour-for-hour Category I credit toward the Physician's Recognition Award.

For further information, contact the Southern Medical Association, 2601 Highland Avenue, Birmingham, Alabama 35205.

NOVEMBER 17 - 19, 1977

The fourth Continuing Education Course in Clinical Neuro-Otolaryngology will be held November 17-19, 1977, at the University Health Center of Pittsburgh, Pennsylvania. It is a course for otorhinolaryngologists, neurologists, those in training for these specialties, and other interested

health professionals. The program will cover review of pertinent anatomy and physiology that will have separate sessions for neurologists and otorhinolaryngologists; problems in audition; balance disturbances; speech; swallowing; taste; olfaction; pain; facial nerve; and the central nervous system complications.

Tuition to attend is \$190 for practicing physicians and \$95 for residents. This Continuing Education offering meets the criteria for credit hours in Category I of the Physician's Recognition Award of the American Medical Association.

For further information contact: Sidney N. Busis, M.D., Course Director, the Division of Continuing Education, 1022 Scaife Hall, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15261 or telephone 412-624-2653.

JANUARY 30 - FEBRUARY 3, 1978

The 1978 Annual Scientific Assembly of the American Society of Contemporary Medicine and Surgery will be held January 30 - February 3, 1978, at the Americana Hotel in Miami Beach, Florida.

The faculty of 100 leaders of American medicine will be headed by the ASCMS President, Dr. Michael DeBakey, and Chairman, Dr. Leon O. Jacobson.

The program will include Seminars and Tutorials on Cardiovascular Diseases, Hypertension, Gastrointestinal Diseases, Inflammatory Bowel Disease, Cancer, Genitourinary Diseases, Pain, Endocrinology, Cryosurgery, Neuropsychiatric Manifestations of Systemic Disease, Acid-Base Abnormalities, and more; all with panel discussions and question-answer sessions.

This Continuing Medical Education offering meets the criteria for 40 hours of credit in Category I for the Physician's Recognition Award of the American Medical Association.

For further information: John G. Bellows, M.D., Ph.D., Director; 6 North Michigan Avenue, Chicago, Illinois 60602. Telephone 312-236-4673.

FEBRUARY 1 - 6, 1978

The International Hair Transplant Symposium will be held in Lucerne, Switzerland, February 1 - 6, 1978, at the Palace Hotel. Multidiscipline faculty will be composed of both Europeans and Americans. The co-sponsors are the American Society for Dermatologic Surgery and the Ameri-

can Academy of Facial Plastic and Reconstructive Surgery.

Registration fee is \$290 and an Economy Travel Package is being offered for \$685. Further information on the symposium is available from Dr. D. B. Stough, III, of the Stough Dermatology and Cutaneous Surgery Clinic, P. A., Doctors Park, Hot Springs, Arkansas 71901.

WINTER 1978 CONFERENCES

The Beth Israel Hospital Continuing Medical Education Courses for the winter of 1978 have just been released. The meetings are approved for up to 25 hours of the American Medical Association Category I Continuing Medical Education credits. This will depend on the number of class hours scheduled. Credit has been applied for from the appropriate specialty colleges. Registration fees for these meetings are \$190 for General Registration and \$125 for House Officers.

The Conferences are as follows:

FEBRUARY 11-18, 1978 — The Third Annual Vail Family Practice Conference to be held at The Mark in Vail, Colorado.

FEBRUARY 18-25, 1978 — The Fourth Annual Vail OB/GYN Conference to be held at The Mark, Vail, Colorado.

FEBRUARY 25 - MARCH 4, 1978 — The Eighth Annual Aspen Radiology Conference to be held at the Aspen Institute for Humanistic Studies, Aspen, Colorado.

MARCH 4-11, 1978 — The Third Annual Vail Psychiatry Conference at the Kiandra-Talisman, Vail, Colorado.

MARCH 4-11, 1978 — The First Annual Vail Cancer Conference, the Lion Square Lodge in Vail, Colorado.

MARCH 11-18, 1978 — The Third Annual Vail General Surgery Conference to be held at The Mark in Vail, Colorado.

MARCH 18-25, 1978 — The Third Annual Vail Internal Medicine Conference to be held at The Mark, Vail, Colorado.

MARCH 18-25, 1978 — The First Annual Vail Urology Conference to be held at the Lion Square Lodge, in Vail, Colorado.

For questions concerning these conferences, contact: Beth Israel Hospital Conference and Institute Program, 1818 Gaylord Street, Denver, Colorado 80206; Attention Sara Brickley, Conference Coordinator.



PERSONAL AND NEWS ITEMS

DR. HERRON RETURNS

Dr. John T. Herron has been appointed Medical Director of the Pine Bluff-Jefferson County Health Center. Dr. Herron was medical director of the Oregon Health Department in Salem for the past five years. Prior to that time, he served as Arkansas State Health Director for over twenty years.

MARION COUNTY PHYSICIANS

Drs. Daniel F. Ward and Roger D. Simons located in Flippin in July. Dr. Ward is a graduate of the University of Missouri and Dr. Simons is a graduate of the University of Texas Branch of Galveston. Both physicians recently completed their residency training in Family Practice at the St. Joseph Medical Center in Wichita, Kansas.

PROFESSOR HONORED

Dr. Frederic W. Rhineland, professor of Orthopaedic Surgery at the University of Arkansas College of Medicine, was recently honored by the American Society for Testing and Materials for his "significant advance made in problem-oriented research."

DR. HOBEROCK ATTENDS MEETING

Dr. Thomas R. Hoberock of Harrison recently attended the annual meeting of the Society of Vascular Surgeons in Rochester, New York.

PLASTIC SURGEON FOR BAXTER COUNTY

Dr. Jim Beckman began the practice of Plastic Surgery in the Baxter General Hospital in June.

DR. BURKS APPOINTED

Dr. Willard Burks of Wynne was recently appointed a director of the Cross County Bank of Wynne. Dr. Burks is associated with the Wynne Medical Clinic.

PHYSICIAN ARTIST

Dr. Johnnie P. Price of Monticello is devoting more time to his hobby of painting. The general surgeon has been participating in a number of classes in art. He uses his sketching talent as a means of communicating with his patients.

DR. HESTIR ELECTED

Dr. John Hestir has been installed as the president of the Caduceus Club, the alumni organization of the University of Arkansas College of Medicine. Dr. Hestir is a Family Practitioner in DeWitt.

DR. LOWE APPOINTED

Dr. Betty A. Lowe has been named Medical Director of the Arkansas Children's Hospital. Prior to the appointment, Dr. Lowe was director of pediatric education at the Children's Hospital. She is a Professor of Pediatrics at the University of Arkansas College of Medicine.

DR. HARBISON JOINS COLONY STAFF

Dr. James D. Harbison has joined the staff of the Booneville Unit of the Arkansas Children's Colony. Dr. Harbison was previously in private practice in Lake Village and Dardanelle.

MEDICAL CENTER THEATER ORGAN

Dr. James L. Dennis has donated a theatre organ to the Medical Center at Little Rock. The musical instrument is currently being rebuilt. Dr. Dennis is an avid theater organ enthusiast and has enlisted the assistance of the American Theater Organ Society in getting the organ repaired. Dr. Dennis hopes to eventually have nationally known theater organists give performances.

DR. ROY CONDUCTS SEMINARS

Dr. F. Hampton Roy recently conducted ophthalmic seminars in Santa Cruz, La Paz, Sucre and Cochabamba, Bolivia. Dr. Roy will return to Bolivia in October 1978 as guest of honor at the Bolivian Congress of Ophthalmology.

DR. WELLS MOVES

Dr. William M. Wells will leave Heber Springs to join the professional staff at the Veterans Hospital in Little Rock on October 1st. Dr. Wells will also be teaching in the area of Family Practice at the University of Arkansas College of Medicine.

SCHOLARSHIP SPONSORS

Dr. Robert L. Kerr and the Saltzman-Guenther Clinic of Mountain Home recently sponsored

scholarships to seniors of the local high school. Dr. Kerr sponsored a \$300 nursing scholarship and the Saltman-Guenther Clinic sponsored a \$200 scholarship.

LEPANTO PHYSICIAN

Dr. Nancy Ezzard has joined the staff of the East Arkansas Family Health Center in Lepanto. Dr. Ezzard is a pediatrician and a graduate of the Emory University Medical School in Atlanta, Georgia. Dr. Ezzard's husband is also a pediatrician and is currently on a fellowship at St. Jude's Children's Hospital in Memphis, Tennessee.

DOCTORS PRESENT PAPERS

Drs. William E. Knight and James W. Long, of Fort Smith, recently presented an original scientific paper entitled "Antibiotic Impregnated Bone Cement in Total Hip Replacement" at the Annual meeting of the Canadian Orthopaedic Association in Toronto.

ASSOCIATION ANNOUNCED

Dr. C. Louis White has joined Dr. George Warren for the general practice of medicine and surgery at 1400 Pershing in Smackover.

EXPEDITION TO BOLIVIA AND PERU

Dr. Kenneth R. Duzan of El Dorado and Mr. Paul Schaefer of Fort Smith, Arkansas Medical Society Executive Vice President Emeritus, joined a scientific geological expedition to Bolivia and Peru in June. The expedition was sponsored by Earthwatch, Incorporated, and led by a professor of Geology from Amherst College.

The eight members of the expedition discovered fossils from the Devonian period in areas which previously had only been the subject of extrapolation.

In addition to the scientific experience, the members of the expedition were able to see the countryside and the people from a different point of view than that experienced by the tourist.



PROCEEDINGS OF SOCIETIES

MINUTES COUNCIL OF THE ARKANSAS MEDICAL SOCIETY June 26, 1977

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, June 26th, in the Plaza East Room of the Camelot Inn, Little Rock. Present were: Burge, Kolb, Wynne, Shuffield, Lilly, Kirkley, Osborne, J. Bell, P. Bell, Lockhart, Irwin, Jameson, Andrews, Harris, McCrary, Jouett, Williams, Kutait, Ellis, Purcell Smith, Edgar Easley, Robert Benafield, George Warren, Gaither Johnston, Mr. Harris, Mr. Warren, Mr. Cearley, Mr. Mitchell, Mr. LaMastus, Dr. Long, and Miss Richmond.

Invocation was by President Kolb.

Chairman Burge recognized new members of the Council — Drs. Wynne, Lilly, Osborne and Lockhart — and introduced Dr. Johnston as chairman of the Legislative Assistance Committee.

The Council transacted business as follows:

1. Approved the following actions of the Executive Committee:
 - (a) Selected Dr. A. J. Thompson of Little Rock for appointment to the Private Insurance Review Committee to succeed Dr. W. Sexton Lewis;
 - (b) Denied a request that the Society publicize the need for preceptors for the nurse practitioner program;
 - (c) Considered an objection of a component society to the Welfare Department's policy of allowing payment for only one hospital visit per day and voted to take no action to oppose the policy.
 - (d) Voted to oppose inclusion of physicians' offices in State Health Coordinating Council regulations governing

certificate of need for out-patient facilities.

2. By motion of Irwin, the Council requested that the Executive Committee and legal counsel prepare a statement setting out a definition of nurse practitioners, the problems involved in the nurse practitioner program, and what is anticipated in the future with regard to the program, so that the Council may consider taking an official stand on the issue.
3. C. R. Ellis, Chairman of the Committee on Medicine and Religion, reported on the Prayer Breakfast which the committee sponsored during the 1977 Annual Session and announced plans for a statewide meeting of physicians and clergy on December 3 in Little Rock. Chairman Ellis advised pharmaceutical firms were being asked to co-sponsor the program but that additional Society financing might be needed.
4. The Council received for information a report from Asa Crow as chairman of the Medical School Committee. At the request of Kemal Kutait, a member of the committee, a discussion of the report will be scheduled at a subsequent Council meeting when Dr. Crow is present.
5. John Kirkley reported on the first meeting of the committee to study the feasibility and advisability of having subsidiary staffing in Little Rock.
6. Gaither Johnston, chairman of the ad hoc committee of the House on Legislative Assistance, reported on the initial meeting of his committee and planned activities.
7. The Council received for information an experience rating report from Arkansas Blue Cross-Blue Shield on the group plan for members of the Society.
8. Executive Vice President Long discussed the policy of expense allowance for the Society president. Upon the motion of Williams, the Council voted to underwrite all expenses incurred by the president of the Society in his official duties during his term of office.
9. Mr. Warren reported that study was still being given to the question of a class action suit on Medicare fee payments. He advised the Council that the public law governing Medicare contains provisions requiring

full utilization of administrative negotiations before suit could be filed in Federal Court.

10. Upon the motion of Williams, the Council voted to grant a charter to the Marion County Medical Society.
11. Upon motion of Williams, the Council voted to amend the previous action to include all physician members on boards of the four health system agencies on the Council HSA Liaison Committee.
12. As a member of the Private Insurance Review Committee, Williams reported to the Council some of the problems encountered by the committee. The Council approved his motion requesting that the Executive Committee define the charge to the committee.
13. John Bell, Second District Councilor, reported on a complaint submitted to the district professional relations committee. Upon the motion of McCrary, the Council voted to request that legal counsel investigate the complaint and report to the Executive Committee on what further action should be taken by the Medical Society.

The meeting adjourned at 2:10 P.M.

APPROVED: John P. Burge, M.D.

Chairman of the Council



ANSWER—Electrocardiogram of the Month

#1. Sinus bradycardia with 1° AV block.

#2. Premature atrial contractions.

Note: A. The abnormal P waves.

B. No change in the QRS morphology.

C. The sinus node is not reset, but finds the atrium refractory and unable to be stimulated after the premature atrial contraction.

D. Further prolongation of the PR interval may be seen when premature atrial beat is quite early as it finds the AV node relatively refractory. If the atrial beat had come slightly earlier, it would have been completely blocked in the AV node.



NEW MEMBERS

GOPAKUMAR MARUTHUR, M.D.

The Garland County Medical Society has accepted Dr. GopaKumar Maruthur into membership. Doctor Maruthur is an Internist with a subspecialty in Endocrinology at the Central Tower Building in Hot Springs.

Dr. Maruthur is a native of India and received his medical education at Calicut Medical College in Calicut, India. He served his internship at the Calicut Medical College, Kerala, India. Dr. Maruthur served a one-year Family Practice residency at West Suburban Hospital in Oak Park, Illinois, and a two-year residency in Internal Medicine at the Cook County Hospital in Chicago. He also had a fellowship in Endocrinology at Cook County Hospital for two years.

From 1968 to 1971, he practiced with the Kerala Government Health Services. Dr. Maruthur is Board Certified in Internal Medicine.

EUGENE T. ELLISON, JR., M.D.

Dr. Eugene T. Ellison is a new member of the Miller County Medical Society. He is associated with Drs. Robert S. McGinnis, A. D. Smith, Jr., and Herbert B. Wren at 4800 Texas Boulevard in Texarkana. Dr. Ellison is an Ophthalmologist.

Dr. Ellison received his B. A. degree from the University of Texas at Austin and his M.D. degree from the University of Arkansas in 1973. He interned at St. John's Hospital in Tulsa, Oklahoma, and completed an Ophthalmology residency at the University of Southern Florida in Tampa, in July 1977.

PHILIP R. HARDIN, M.D.

Dr. Philip R. Hardin has been accepted into the membership of the Baxter County Medical Society. Dr. Hardin was born in Ranger, Texas. He received his B. A. degree in Biology from Rice University, Houston, and his M.D. degree from the University of Texas Medical Branch in Galveston. Dr. Hardin interned at McKay-Dee Me-

morial Hospital, Ogden, Utah, and completed a Dermatology residency at the University of Texas Medical Branch in Galveston.

Dr. Hardin was Chief of Dermatology at the Corpus Christi Naval Hospital while serving in the United States Naval Reserve in Texas. He is board certified.

Dr. Hardin located in Bull Shoals in July 1976. He is associated with the Bull Shoals Hospital and Clinic.

LEONARD J. DE CARLO, M.D.

Dr. Leonard J. DeCarlo has been accepted into the membership of the Jackson County Medical Society.

Dr. DeCarlo was born in Jersey City, New Jersey, and received his B. S. degree from St. Peter's College there. He was graduated from McGill University Faculty of Medicine in Montreal, Providence of Quebec, in 1962. He served a rotating internship program at New Britain General Hospital in New Britain, Connecticut. He had one year of General Surgery residency at New Britain General Hospital and then served five years in the United States Air Force at Shepard Air Force Base in Texas.

Following his military service, Dr. DeCarlo trained in Diagnostic Radiology at the University of Oklahoma Health Sciences Center.

Dr. DeCarlo practiced one year at the Oklahoma City Clinic and Presbyterian Hospital, and four years at the Midwest City Memorial Hospital. While in Midwest City, he was an instructor in radiation therapy at the School of X-ray Technology of Oscar Rose Junior College.

Dr. DeCarlo is board certified in Diagnostic Radiology. His office is at 1205 McLain in Newport.

FRED E. WILSON, M.D.

The Woodruff County Medical Society has accepted into its membership Dr. Fred E. Wilson. Dr. Wilson is a native of Searcy. He received his B. S. degree from the University of Arkansas in 1972 and was graduated from the University of Arkansas College of Medicine in 1976.

Dr. Wilson interned at St. Vincent Infirmary. He is associated with Dr. James E. Rowe in Family Practice at the McCrory Clinic.

PULASKI COUNTY ADDITIONS

The Pulaski County Medical Society has added the following new members to its membership roll:

JACOB AMIR, M.D. Dr. Amir was born in Anvers, Belgium, and received his M.D. degree

NEW MEMBERS

from the Hebrew University of Medicine in Jerusalem, Israel. Dr. Amir completed his internship and a one-year residency in Oncology at the Hadassah Medical Center in Jerusalem. He then trained for five years in Internal Medicine at Beilinson Medical Center in Petach-Tokva, Israel.

Dr. Amir was Assistant Professor of Medicine at the Case Western Reserve University of Cleveland, prior to locating in Arkansas. He is associated with the Little Rock Diagnostic Clinic at 10001 Lile Drive in Little Rock. Dr. Amir specializes in Hematology and Oncology.

WILLIAM J. MORTON, M.D. Born in Sherman, Texas, Dr. William J. Morton received his B. A. degree from the University of Texas in Austin. He was graduated from the University of Texas Southwestern Medical School in Dallas in 1970. Dr. Morton interned at Barnes Hospital in St. Louis, Missouri. He also received training in Internal Medicine and Gastroenterology at Barnes from 1971 to 1975.

Dr. Morton is board certified in Internal Medicine. He specializes in Gastroenterology at the Little Rock Diagnostic Clinic, 10001 Lile Drive, Little Rock.

ERIC A. FRASER, M.D. Dr. Eric A. Fraser, a native Arkansan, received his M.D. degree from the University of Arkansas College of Medicine. He also served an internship and residency in Pediatrics at the University Medical Center.

Dr. Fraser practices Pediatrics at 516 West Pershing Boulevard, North Little Rock.

JO ETTA GALBRAITH, M.D. Dr. Joe Etta Galbraith was born in Little Rock, and attended the Arkansas State College in Jonesboro. She received her M.D. degree from the University of Arkansas College of Medicine in 1968 and interned at the University Medical Center Hospital.

Dr. Galbraith was associated with the Alameda Medical Group in New Mexico prior to returning to the University of Arkansas Medical Center for further training. She was in Internal Medicine residency from October 1971 to December 1973, and from April 1974 to April 1976 in Cardiology training. She is certified by the American Board of Internal Medicine.

Dr. Galbraith specializes in Cardiology at 500 South University in Little Rock.

JOHN C. LEWELLEN, M.D. Dr. John C. Lewellen is in Family Practice with offices at 8824 Chicot Road in Little Rock. He is a native of Texas. Dr. Lewellen received his pre-medical education at Henderson State University in Arkadelphia. In 1976, he was graduated from the University of Arkansas College of Medicine. His internship was at St. Vincent Infirmary in Little Rock.

JIM C. MORSE, M.D. Dr. Jim C. Morse is a native of Russellville. He was graduated from the University of Arkansas School of Pharmacy in 1967. He received his M.D. degree from the University of Arkansas College of Medicine in 1973. Dr. Morse interned at the University of Alabama Hospitals and Clinics in Birmingham.

Dr. Morse was in an Internal Medicine residency from 1974 to 1977 at the University of Arkansas Medical Center. His office is in Suite 402 of the Doctor's Building, 500 South University, Little Rock.

ALBERT REED THOMPSON, M.D. Dr. Albert R. Thompson is a native Arkansan. He received his B.A. degree from Hendrix College in Conway and was graduated from the University of Arkansas College of Medicine in 1970. His internship was at the University of Arkansas Medical Center.

Dr. Thompson was in a General Surgery residency at the University Medical Center 1973-74 and completed an Otolaryngology residency in 1977. He practices Otolaryngology at 500 South University, Little Rock.

HELEN BUTLER, M.D. Dr. Butler is in pediatrics internship at the University of Arkansas Medical Center. She was born in Tupelo, Mississippi. Dr. Butler received her B.A. degree from the University of Texas at Austin and her M.D. degree from the Texas Tech University School of Medicine in Lubbock.

M. CARL COVEY, JR. Mr. Covey is a Junior at the University of Arkansas College of Medicine. He is a native of Gentry and attended the University of Arkansas at Fayetteville where he was graduated with a B.S.I.E. degree.





OBITUARY

RICHARD B. DICKINSON, M.D.

Dr. Richard B. (Bill) Dickinson, retired DeQueen physician, died May 30th. Dr. Dickinson was born February 19, 1918, in Horatio. He was a 1945 graduate of the University of Arkansas School of Medicine. Dr. Dickinson had practiced medicine in DeQueen since 1948. He was a veteran of World War II.

Dr. Dickinson was active in community affairs. He had served as president of the DeQueen General Hospital Board of Directors and was a member of the School Board from 1970 to 1975.

He was a Fellow of the American Geriatric Society, a Fellow of the Arkansas Obstetrical and Gynecological Society, and a Fellow of the American Abdominal Surgeons. Dr. Dickinson had served as a member of the Arkansas Basic Science Board, the Arkansas Criminal Justice Commission, the community based Rehabilitation Com-

mission, and the Arkansas State Hospital Board.

Dr. Dickinson is survived by his wife, Mrs. Jayne Marshall Dickinson; two daughters; his mother, Mrs. Belle Dickinson of Horatio; two brothers, Dr. Rodger Dickinson now in Iran, and Dr. George Dickinson of DeQueen.

JAMES RICHARD CALLAWAY, M.D.

Dr. James Richard Callaway, a physician associated with the Benton Unit of the State Hospital, was found dead on July 11, 1977.

Dr. Callaway was born at Murfreesboro on August 14, 1930. He attended the Amity public schools and was a veteran of the Korean conflict. He received a degree of B.S.E. from Henderson State Teachers College in Arkadelphia and Monticello A & M. He was graduated from the University of Arkansas College of Medicine in 1960.

Dr. Callaway had been in private practice in Clarksville for three and a half years prior to joining the staff at the State Hospital in 1966. He was a member of the Baptist Church and a 32nd Degree Mason.

Dr. Callaway is survived by a daughter, Reba Jane Callaway, and a son, James Richard Callaway, Jr., of North Little Rock.



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Vol. 74 No. 4

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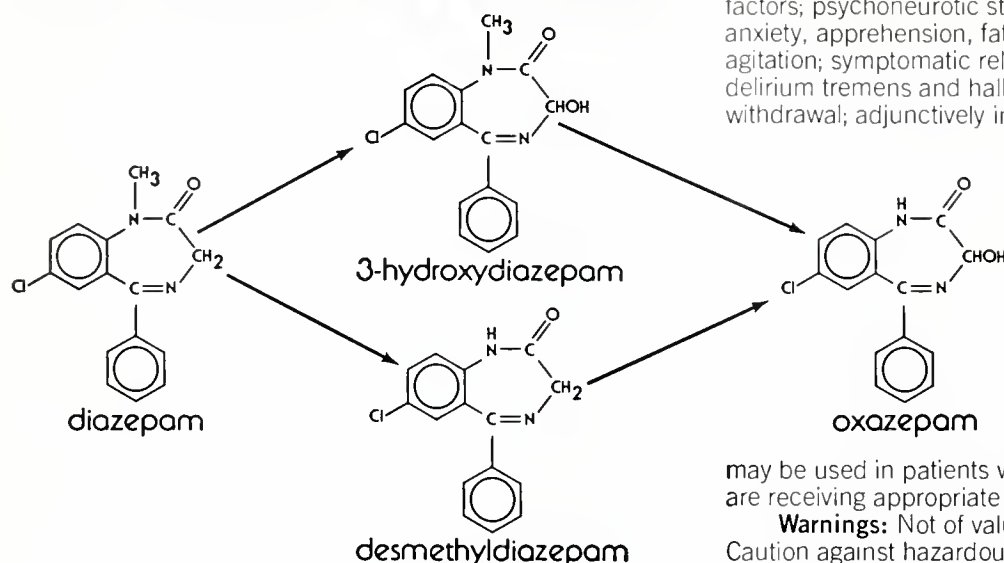


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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 74, No. 4. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Geographic Distribution of 1962-71 Graduates of the University of Arkansas College of Medicine

(The work on this project was conducted under a grant from the Winthrop Rockefeller Foundation.)

W. Richard Norton, M.A., William L. Culp, M.S.W., and Thomas A. Bruce, M.D.*

"Dear Dean:

. . . This is one of the finest boys this town has ever produced. We are delighted he has been accepted into medical school and look forward to having him back one of these days. As you know, our town has had trouble recruiting new doctors, and it looks like we'll just have to raise our own . . ."

Frequently a letter such as the one above arrives in the Dean's office. During the last few years there has been increasing evidence that medical graduates are not going home as expected. The recent Macy Commission report shows that Arkansas ranks 48th among the states in its 89 physicians per 100,000 population ratio.¹ Many small towns and rural areas in the state have particularly great needs for more physicians. This report will provide objective information on the geographical distribution of recent University of Arkansas for Medical Sciences (UAMS) College of Medicine graduates.

The basic data used for this study were taken from existing reports on recent College of Medicine graduates. These reports have been made available by the Arkansas Caduceus Club, the organization of alumni and friends of the medical school. All data are based on practice location as of January, 1975. This will tend to underestimate the total return home figures somewhat, since those physicians who returned home and left sub-

sequently will not be counted. The study period, 1962-71, was designed to avoid the potential bias of residency training for many post-1971 graduates, a large number of whom are not yet located in practice.

Return to The State

The total sample includes 810 physicians who graduated during the 1962-71 period. Of this total, 51% (N = 411) remained in Arkansas to practice and 49% (N = 399) left Arkansas. In other words, almost exactly one out of each two doctors trained at our College of Medicine were lost to other states. The Arkansas retention rates are comparable with nation-wide figures which show that only 42.7% of the 1960 U. S. medical school graduates were practicing during 1975 in the state in which they graduated from medical school.² This is obviously a significant loss of one of the state's most valuable human resources, and is a source of continuing concern to the medical school and to the governmental authorities of the state.

Return to Home County

What about our hypothetical town which hopes to welcome home a native son or daughter after medical school is completed? We have already seen that only half of the newly minted doctors will even remain in the state. The study also found that of the 810 physicians graduated during this period, only 13% (N = 104) are now practicing in their home counties. As can be seen from Table I, almost three-fifths (59%) of the 13% who did return to their home county were Pulaski County natives returning to Pulaski. Four percent (N = 32) were returnees to the larger counties (over 25,000, excluding Pulaski). A disappointing

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GEOGRAPHIC DISTRIBUTION OF 1962-71 GRADUATES OF THE UNIVERSITY OF ARKANSAS
COLLEGE OF MEDICINE

TABLE I.

1962-71 UAMS COLLEGE OF MEDICINE GRADUATES RETURNING
TO THEIR HOME COUNTY TO PRACTICE, JANUARY, 1975
(BY COUNTY POPULATION SIZE)

COUNTY SIZE	GRADUATED		RETURNED			RETENTION RATE (RETURNED/GRADUATED)
	N	%	N	(a)	(b)	
<25,000	224	28%	11	1%	10%	5%
25,000 + (except Pulaski)	374	46%	32	4%	31%	9%
Pulaski	212	26%	61	8%	59%	29%
TOTAL	810	100%	104	13%	100%	13%

(a) % of Total Graduating

(b) % of Total Returning

finding was that only 1% (N = 11) returned to the smaller counties (under 25,000), where the need is greatest. Thus, it is evident from these data that the native sons and daughters returning to the home county after medical school graduation are not likely to be a substantial source for the county's supply of doctors. This is most notably true for the smaller counties. In fact, 50 of the state's 75 counties had no physicians returning to them during the study period. Each county's net retention rate can be seen in Table II.

Return to Home Region

If the new physicians do not return to the specific county from whence they came, can we perhaps expect them to return to the general area? Perhaps doctors from Northwest Arkansas return to that quadrant of the state and in that manner help alleviate the area's shortage. Table III tests this proposition by examining the four Health Service Areas (HSA's into which the state is divided by the State Health Planning and Development Agency—See Figure 1). While it is true that the regions are not necessarily natural cultural divisions, these regions have been designated by the state and are used in making health delivery decisions. Moreover, there is substantial interest in whether UAMS medical graduates have settled in the general region of origin, since they infrequently return to their home county as we have seen.

For location of physicians within HSA regions, the data were organized into three divisions for each class graduating during the ten year study

TABLE II
INDIVIDUAL COUNTY
RETENTION RATE*

COUNTY	RATE OF RETENTION (%)
Ashley	12.50
Benton	1.69
Clark	6.25
Clay	16.67
Cleburne	20.00
Columbia	8.33
Craighead	13.33
Dallas	12.50
Desha	25.00
Garland	15.00
Greene	22.22
Hot Springs	16.67
Howard	10.00
Jefferson	6.90
Johnson	25.00
Lawrence	16.67
Ouachita	9.52
Pulaski	28.11
Randolph	20.00
St. Francis	16.67
Saline	27.27
Searcy	25.00
Sebastian	11.76
Union	5.56
White	19.81
All Other Counties	0

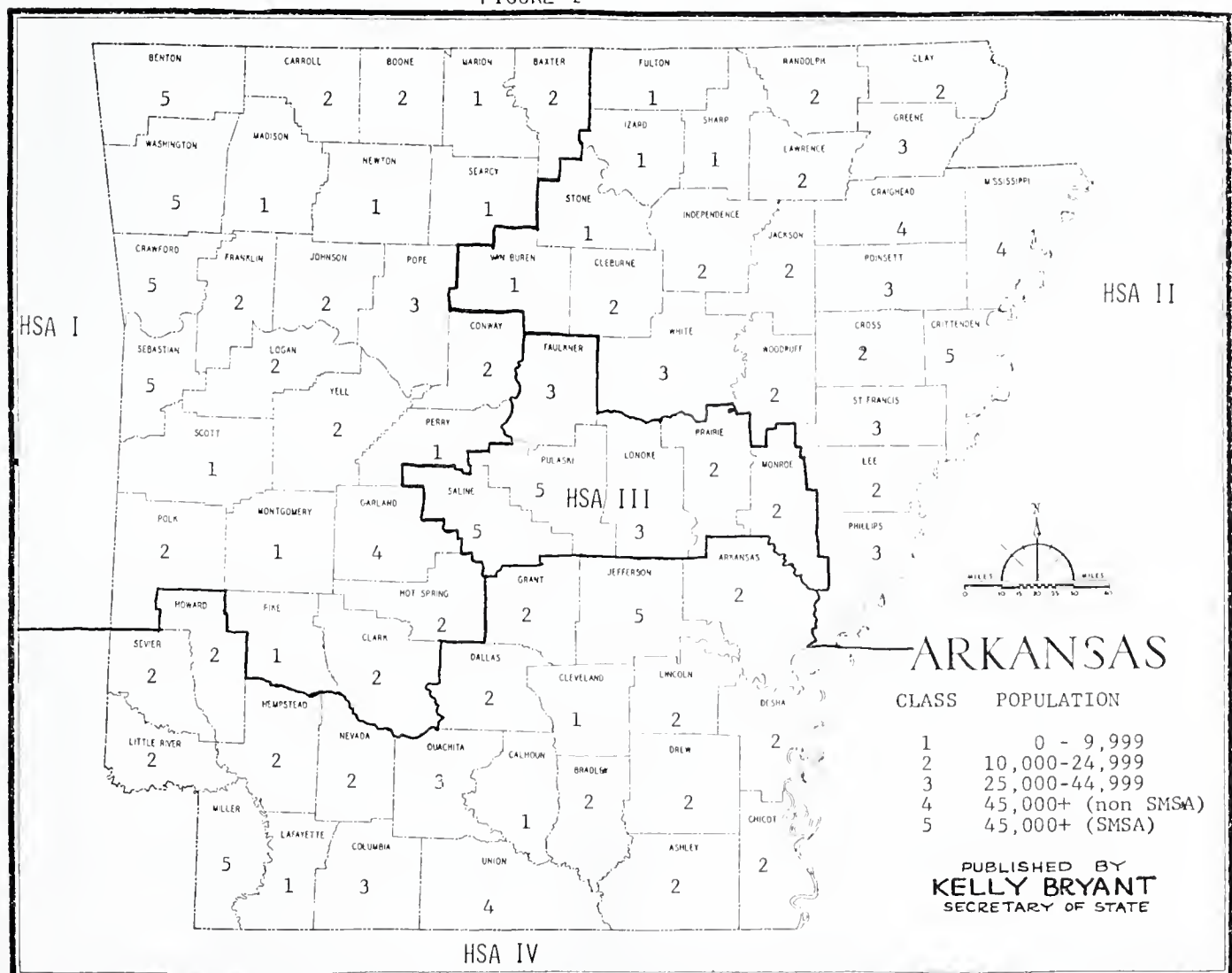
*"Retention Rate" = # of UAMS graduates returning to county
of UAMS graduates originating in the county

TABLE III

LOCATION OF 1962-71 UAMS COLLEGE OF MEDICINE GRADUATES, JANUARY, 1975
(BY HOME REGION)

REGION	GRADUATES	IN ARKANSAS		IN ARKANSAS RESIDENCIES		ARKANSAS PRACTICE RETURNED TO REGION		OTHER ARK. LOCATION	
		N	%	N	%	N	%	N	%
I (NW ARK)	176	83	47%	13	7%	38	22%	32	18%
II (NE ARK)	162	79	49%	9	6%	33	20%	37	23%
III (CENTRAL ARK)	263	134	51%	24	9%	68	26%	42	16%
IV (S ARK)	209	115	55%	17	8%	30	14%	68	33%
TOTAL	810	411	51%	63	8%	169	21%	179	22%

FIGURE 1



GEOGRAPHIC DISTRIBUTION OF 1962-71 GRADUATES OF THE UNIVERSITY OF ARKANSAS
COLLEGE OF MEDICINE

period: (a) total number of graduates originating in each region, (b) total number of graduates practicing in Arkansas, and (c) total number of graduates practicing in their home regions. This allows the identification and analysis of which regions are "losing" more graduates out of state and which regions are losing their graduates to the other regions within the state. Table III shows regional practice location of the 810 1962-71 Arkansas graduates according to their region of origin at the time of their admission to the College of Medicine. We will examine first the *within-state* retention rate. As was noted earlier, a statewide average of 51% of the recent graduates remained in Arkansas. The regional variations range from a high of 55% (N = 115) of the South Arkansas graduates who remained in the state to a low of 47% (N = 83) of the Northwest Arkansas graduates who remained in the state. Although there is some variation, the *within-state* retention rate does not vary markedly by region.

Overall, a total of 21% (N = 169) of the state's recent UAMS graduates have returned to their home regions to practice. However, as is evident from the table, that average masks some significant regional variation. Central Arkansas (Region III) has the highest *within-region* retention rate at 26% (N = 68), and South Arkansas (Region IV) has the lowest within-region retention rate at 14% (N = 30). Northwest Arkansas at 22% and Northeast Arkansas at 20% are arrayed in the middle in terms of their regional retention rate. Thus, South Arkansas is clearly the greatest ex-

porter of physicians to other regions of the state, although its proportion of export to other states is less. There is, of course, an explanation for Central Arkansas' highest *within-region* retention rate. The region contains Little Rock which is (1) the capital and largest city of the state, (2) the state's chief tertiary medical care center, (3) the only site of all state residency training during the period of study, and (4) the site of the University of Arkansas' Medical Sciences campus. In short, Central Arkansas has several unique features which influence its retention rate.

Return to County of Similar Population Size

If the native sons and daughters do not go home again, do they return to counties that are similar in population size to that of their home counties? In order to determine this, counties were divided into five population classes, generally following the pattern established by the American Medical Association (AMA).⁴ In terms of the 348 physicians *who remained in Arkansas*, Table IV indicates that 49% were practicing in locations approximately equal in size to their home county, 32% went to larger practice locations, and the remaining 19% chose smaller practice settings.

Within Table IV it can be seen that only 8% (N = 1) of those from the smallest counties who remained in the state now practice in the smallest counties while 78% (N = 105) of those from the largest counties now practice in the most heavily populated counties. The middle sized counties were progressively arrayed in between these two extremes (with one exception).

TABLE IV

PRACTICE LOCATIONS OF 1962-71 UAMS COLLEGE OF MEDICINE GRADUATES, JANUARY 1975
(BY POPULATION SIZE OF HOME COUNTY)

COUNTY POPULATION CLASS	TOTAL GRADS	STILL IN ARKANSAS RESIDENCIES (a) (b)		TOTAL PRACTICING IN ARKANSAS (a) (b)		PRACTICING IN ARKANSAS					
						SIZE OF		PRACTICE		COUNTY	
						= home county	< home county	< home county	> home county	> home county	
		(a)	(b)	(a)	(b)	a	c	a	c	a	c
1	28	0		13	(46%)	1	(8%)	- - - - -		12	(92%)
2	196	10	(5%)	98	(50%)	32	(33%)	8	(8%)	58	(59%)
3	125	9	(8%)	63	(50%)	22	(35%)	13	(21%)	28	(44%)
4	111	12	(11%)	40	(36%)	10	(25%)	15	(38%)	15	(38%)
5	350	32	(9%)	134	(38%)	105	(78%)	29	(22%)	- - - - -	
TOTALS	810	63	(8%)	348	(43%)	170	(49%)	65	(19%)	113	(32%)

(a) - N

(b) - % of total graduates from county population class

(c) - % of total located in Arkansas

In summary, almost exactly one out of two doctors who are retained in the state will indeed choose counties similar in size to those from which they originated; however, the smaller counties are somewhat disadvantaged in their competition with the larger counties. While a town or county — especially the smaller ones — are not likely to get a hometown boy or girl back, there is a decent chance of getting a physician from a similar sized hometown.

Conclusions

1. The data show that Arkansas is retaining only one out of two of the recent UAMS graduates.
2. Only 13% of the UAMS graduates returned to their *home counties*. Of this group, the largest percentage were Pulaski County natives returning home.
3. Only 21% of the graduates returned to their home regions within Arkansas. Northwest Arkansas was the region exporting the greatest percentage of recent graduates to other states. South Arkansas was the region exporting the most graduates to the other regions of the state.
4. Almost one in two doctors who stay in the state practice in counties of approximately the same size as the one from which they originated; however, the rural counties lose somewhat more doctors than do the urban counties.

It seems premature at this point to draw conclusions about what steps should be taken to alleviate the problems of physician needs in Arkansas. A more detailed longitudinal assessment of physician mobility in the state is now in process by the College of Medicine. This study would provide additional insight into the reasons why physicians locate in particular areas. It seems clear at this point, however, that the University faculty will need to work closely with members of the Arkansas Medical Society, state authorities, and local communities if meaningful changes are to be made.

¹For the data comparing Arkansas to the rest of the nation see: *Physicians for the Future: Report of the Macy Commission* (New York: Josiah Macy Foundation, 1976), p. 69.

²It should be noted that the 51% state retention rate is inflated somewhat by the fact that 8% (N=63) of these recent graduates are doing residencies in Arkansas. For the national rates see: Henry R. Mason, "Medical School Residency, and Eventual Practice Location: Toward a Rationale for State Support of Medical Education," *Journal of the American Medical Association*, Vol. 233, #1 (July 7, 1975), 49-52.

³It should be emphasized here that we are dealing with the "retention rate", i.e. a percentage of UAMS graduates returning home compared to total number of UAMS students originating in each county (See Table II). The "regional retention rate" is a composite of the data on counties which are contained in the region. It is evident from Table III, that, numerically, Central Arkansas loses more UAMS graduates. However, as is also evident from Table III, numerically South Arkansas also contributes more doctors to the other regions of the state than does even Central Arkansas.

⁴The population classes (See Figure 1 for each county's class) are as follows:

CLASS	COUNTY POPULATION
1	0 - 9,999
2	10,000-24,999
3	25,000-44,999
4	45,000-and over (non SMSA)
5	45,000-and over (SMSA)

An SMSA, according to the U.S. Bureau of the Census, "consists of a county or group of counties containing at least one city (or twin cities) having a population of 50,000 or more plus adjacent counties which are metropolitan in character and economically and socially integrated to the central city."



Rocky Mountain Spotted Fever in Northwest Arkansas

J. L. Lancaster, Jr., Ph.D.* and James K. Patrick, M.D.**

Our interest in RMSF was first captured in 1969 when a three year old male patient developed an undiagnosed rash and fever. After one week he suddenly developed generalized petechial purpura and was rushed from home to the hospital only to die within three hours. After 15 years of general practice, a case of RMSF was missed because it was not suspected and the lethal swiftness of this disease made a lasting impression.

Our purpose in presenting this paper at this time of year is to make other Arkansas physicians aware of the prevalence of RMSF just prior to our "tick season". We will discuss the manner in which man becomes the host for Rickettsia.

Physicians will be encouraged to treat with tetracycline or chloramphenicol upon suspicion of RMSF, and suggestions of how to decrease the chances of an infected tick bite will be made.

RMSF is now considered a misnomer.¹⁵ The cases in the Bitter Root Valley of Montana are being controlled and RMSF is now a disease of the South Atlantic and South Central States.^{1,5} The chart in figure 1 shows the distribution of reported cases through September for the year 1975. The number of case reports usually total about 600 for the U.S. However, in 1974 there were 754 cases, and thus far in 1975 there have been 813 cases reported.¹⁶ Since 1969 our hospital in Fayetteville has treated 12 cases, which meet the criteria for RMSF (a rise in the Weil-Felix titer to 1:160 or complement fixation 1:10). Of these 12 cases, three deaths have resulted.

Perhaps Arkansas is one of the ideal habitats for the tick. Arkansas ticks which are proven to carry the RMSF rickettsia are the Lone Star tick (*Amblyomma americanum*), the American dog tick (*Dermacentor variabilis*), and the Black-legged tick (*Ixodes spicularis*). The Lone Star and American dog ticks are summer ticks. Most of their eggs are laid in the early spring and most mature adults are present by June and throughout the summer. They hibernate during the fall and winter months. However, adult males have been found on cattle in December, and the earliest date found

in Northwest Arkansas for an engorged female (ready to lay eggs) was February 19.

The life span of these ticks is one year, although some species of ticks may live two years. Ticks have three stages to their development; the larvae, the nymph and the adult. Each stage requires they attach themselves to a host, feed, and then drop off. Therefore, man has three chances to become infested with the RMSF rickettsia.¹⁴ Studies in tick population in parts of Tennessee have shown that 5 percent of the ticks tested carried the RMSF rickettsia.⁴

The black-legged tick is a winter tick, relatively abundant in the winter and early spring.³ So, although the peak case reports in Arkansas are in the summer, RMSF may be contracted anytime of the year. Common hosts for these ticks include the foxes, skunks, raccoons and dogs. In general, the tick in each growth phase progresses to a larger host each time, and man most often is the accidental host for the adult tick. Aside from the temperature, other factors which provide for ideal tick growth are humidity and shade. The larvae, nymphs and adults tend to stay under leaves or near the ground in thick grass or other undergrowth where there is moisture. They cannot tolerate too much sunshine and therefore seek the shade.

In Arkansas, the child who plays with a dog, or the family moving into a newly established suburban development where these tick growth conditions exist are at high risk for RMSF. Whereas in

TABLE 1
1975
ROCKY MOUNTAIN SPOTTED FEVER
Cases reported to 12/13/75

North Carolina	129
Virginia	111
Oklahoma	93
South Carolina	84
Tennessee	72
Pennsylvania	41
Georgia	37
New York	36
Texas	31
Maryland	30
Arkansas	20

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the Rocky Mountains the logger, camper, or forest service worker is the high RMSF risk.

The physician, in order to save the patient, must make the diagnosis of this rickettsial infection before any of the laboratory data will confirm the diagnosis. Any of the Weil-Felix agglutination tests, such as: *Proteus* OX-19, OX-2, or OX-K titers may be elevated by the *R. rickettsiae*.⁷ However, the tests or studies do not turn positive until the second week of the disease, which is when most of the children die with a terminal petechial rash. The same is true of the complement fixation test for RMSF. If a live tick is discovered on a patient, a technique of testing the tick by dissecting it and testing with an immune fluorescent antigen for antibody reaction¹⁴ could give an immediate diagnosis if a lab in Arkansas were to stock this antigen material. Unfortunately, the closest source now is the Rocky Mountain Rickettsia Lab in Hamilton, Montana.

The most rewarding finding in a febrile patient with an erythematous, macular, measles-type rash is the history of a tick bite, usually 3 or 4 days, but possibly as long as 10 days before the onset of the illness. This is evidence enough to institute therapy with tetracycline or chloramphenicol drugs.

Even if untreated this initial erythematous rash is limited to two or three days. This initial rash is said to be present in 100 percent of the cases. A Memphis study revealed two of forty-two patients without rash, but both were black patients and the rash may have been missed.⁵ As the patient becomes terminal a petechial rash, due to disseminated intravascular coagulation which depletes the platelet store and reveals itself as wide-spread petechial skin hemorrhaging becomes evident and is different from the initial "measles" rash.

Besides the DIC syndrome, deficiencies of factors II, VII, and IX, have been reported. Every organ in the body shows a diffuse vasculitis, ranging from endothelial proliferation to vascular destruction and thrombosis. The brain evidences multifocal encephalitis, consisting of glial nodules and microinfarcts.⁵ The blood pressure begins to fall and the patient quickly succumbs. However, occasionally the patient can be salvaged if therapy is instituted as the pressure is falling. Cases without disseminated intravascular coagulation show only a 6 percent mortality rate.⁵ But with DIC, the mortality rate is as high as 50 percent.⁵ A predominance of the initial erythematous rash on

the extremities, including the palms of the hands and soles of the feet, of RMSF is in contrast to the predominant trunkal distribution of the Murine Typhus rickettsia. The involvement of the palms and the soles of the feet described in most papers refers to the terminal petechial rash "black measles", not the initial erythematous rash.

As the first few days progress, noticeable lethargy and irritability, suggesting CNS involvement exists. Headaches and general myalgias are common. RMSF is difficult to distinguish from viral infections at this point, particularly the Coxsackie Viral group. Conjunctival irritation and a cough of upper respiratory infection is sometimes present, thus making the differential from measles more challenging. Otitis media and pneumonitis may tend to lure the physician into treating with a penicillin or other non-effective antibiotic. Most of these patients are small children and we have fears of producing yellow teeth staining with tetracyclines, or aplastic anemia with chloramphenicols. Nevertheless, one of these drugs must be used with the history of tick bite and the presence of the initial erythematous rash and fever.

The course of the disease usually reaches the dangerous petechial stage in eight to ten days, however, some patients die in four to six days of a rapidly progressive disease.⁷

This apparent difference in virulence of the same rickettsia strain in man has never been clearly demonstrated, but has been clinically observed by those entomologists working in the field, particularly in the Bitter Root Valley of Montana.

The appropriate antibiotic usually initiates a rapid recovery from RMSF, however, psychological studies confirm suspicions that brain damage of a permanent nature does occur with increased incidence in former RMSF patients.¹²

Prevention

Prevention of infection may be accomplished by avoidance of tick infested areas, proper dress and prompt removal of attached ticks. If ticks are known to be present in an area, one can protect himself by simply avoiding, or not invading such areas. If one must go into a tick infested area, he can avoid tick bites by tucking the pant legs inside his socks, wearing boots with pants tucked into the boots and also using a tick repellent on his clothing. Once invading a tick infested area and getting ticks attached to the body, prompt removal lessens the chance of infection. In the case of small

children, parental education to examine the child daily at bath time, particularly in the hairline, and removal of attached ticks will probably prevent infection.

Removal of attached tick is best accomplished by grasping the tick between the thumb and forefinger and exerting a steady pressure opposite the direction in which the tick is attached. The tick will loosen its grip and all the parts of the mouth will come clean. Never use a jerking or snapping motion or the mouth parts will be left imbedded and may cause secondary infection. Application of an antiseptic to the site of the bite is advisable.

Insecticidal treatment of infested areas, including lawns, may be necessary and also reduce the possibilities of tick bite and subsequent infection. Materials and directions for use listed in "Insecticide Recommendations for Arkansas". MP 144 Cooperative Extension Service, University of Arkansas. Every County Agricultural Agent in the State of Arkansas has a copy in his office, and can advise the home owner on application.

Materials listed and rates of use are as follows:

SEVIN — ½ lb. of 50% wettable powder in sufficient water to spray 1,000 square feet.

CHLORDANE — 2 teaspoons of 75% emulsifiable concentrate.

DIAZINON — 1 cup of 25% emulsifiable concentrate.

DURABON — 1 tablespoon of 22.4% emulsifiable concentrate.

TOXAPHENE — 2 tablespoons of 60% emulsifiable concentrate.

HEPTOCHLOR — 10% granules at 10 lbs. per acre is recommended for recreational areas.

Summary

This paper would alert Arkansas physicians at this time of year for the early recognition of RMSF symptoms. On suspicion, treatment with tetracycline or chloramphenicol should be instituted.

The peak tick season is June through September, but ticks carrying RMSF are present all year in the State. Precautions before entering tick infested areas are described, and suggested chemical treatment for geographical locations are presented.

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The Physician as an Expert Witness in Arkansas by Mandate or by Agreement?

Gary J. Byrd, M.D.*

With increasing frequency physicians are being called into courts of law as an expert witness. In a small minority of such instances the physician is a specialist in legal medicine and is well prepared by training and experience for the task. In a much larger majority, however, the physician is primarily a clinician who is at best only vaguely familiar with his rights and duties as an expert witness.

The receipt of a subpoena is usually the notice that a physician receives that his appearance in court is being sought. This subpoena does not indicate the capacity in which the physician is being sought as a witness. Based upon their function and rules of procedure, witnesses may usually be categorized as either "fact" witnesses or expert witnesses. Though other professionals such as engineers, attorneys, bankers, and appraisers can be expert witnesses, the scope of this article will be limited to physicians who are called as expert witnesses. A physician who has been called to provide expert testimony relative to a patient whom he has treated could be in a unique position in that he may have some implied "duty" to testify for his patient. When a physician has been called to testify in a matter of which he has no direct factual knowledge then he could feasibly decline to be involved. However, should he elect to be involved in the latter example and should he feel a duty to be involved in the former example then he should be justly compensated for his time and knowledge.

The rights of the expert witness have been determined judicially by a supreme court ruling in nine states: Colorado,¹ Florida,² Illinois,³ Indiana,⁴ Iowa,⁵ Kansas,⁶ Nebraska,⁷ Pennsylvania,⁸ and Rhode Island.⁹ In each of these decisions except Nebraska, the absolute right of an expert witness to be paid for his time and knowledge was affirmed. The current status of the law in Arkansas will be discussed; the alternatives available to the physician who is called to testify will be examined; and the basic rights of physicians

under the United States Constitution will be given.

The Arkansas Revised Statutes make no distinctions between witnesses "per se" and expert witnesses. Based upon Ark. Rev. Stat. § 28-510 it would seem that any person can be subpoenaed into court, and be forced to testify. ". . . a witness shall be obligated to attend for examination the trial of a civil action — regardless of his or her place of residence with the state — (if exempt, then required to give a deposition)—and shall be paid for travel, reasonable expenses for loss of time based upon his or her present earnings, and attendance fees at the time of service. At first examination, this would seem to provide adequate compensation for the physician expert witness. However, the statute continues, ". . . however, a witness . . . on the trial of a civil action in the county of his or her residence . . . shall be paid an attendance fee only." Witnesses are presently allowed three dollars per day of attendance as delineated in Ark. Rev. Stat. § 28-524. When tested judicially in the Arkansas courts, the authorities have been divided as to the right of an expert witness to refuse to testify unless, in addition to factual witnesses, he has been reasonably compensated for his time, skill, and expertise.^{10,11,12}

Fact witnesses provide direct responses to questions posed to them by attorneys about factual matters which are in dispute. Expert witnesses may do one or more of the following: (a) draw upon facts and state their professional opinion, (b) come to conclusions, (c) respond to hypothetical questions, (d) clarify or explain technical procedures to the court or jury, or (e) require modification or amplification of a particular question when a simple yes or no answer would not suffice to properly answer that question.

The testimony of an expert witness is based on his special training or experience. In some jurisdictions this expertise has been regarded as having all the characteristics of property. A Pennsylvania ruling states that "the private litigant has no more right to compel a citizen to give up the product of his brain than he has to compel the giving up of

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material things".¹³ If the benefits to be derived from this particular expertise or skill are attended with all the character of property, then unless compensation is made, the witness will have been deprived of his property without due process of the law. This patently violates the rights secured each citizen under the 14th Amendment to the United States Constitution. If a physician should refuse to testify on the grounds that he does not care to work, then he could invoke the 13th Amendment to the United States Constitution which prohibits involuntary servitude and declare that an illegal attempt is being made to force him into the service of the state. A refusal to testify could result in the court citing the physician for contempt. However, the ability of a court to hold a reluctant witness in contempt is divided into two distinct categories, which are referred to as criminal and civil. An individual is cited for criminal contempt for transgressions which have already been committed and the penalty is a fine or incarceration or both.

When the court takes exception to that which an individual has *failed* to do, that is, to comply with a specific order of the court, the individual may be held in civil contempt and punished by incarceration. The physician witness in this situation, according to the language of the United States Supreme Court in *Gompers v. Buck's Stove and R. Co.*¹⁴ carries with him the keys with which he may at any time unlock the jail simply by yielding to the demands of the court.

This would seem to offer the sincere physician who was reluctant to be an unpaid expert witness no option other than the mercy of the court. There is an alternative course of action. In order for a judge to cite a witness for civil contempt and order him jailed until he complies with the court's order, it is essential that the demands of the judge be reasonable and that he have specific authority in law to make such demands. Should the physi-

cian expert witness believe that the court would fail in its attempt to meet these criteria he can test the validity of the citation collaterally with an application for a writ of habeas corpus.

This action would establish a test case and the issue could be appealed to the proper court for judicial determination. The basic rights guaranteed to the physician under the 13th and 14th Amendments to the United States Constitution would have precedence over state laws and previous state court rulings.

In conclusion, it seems that this situation will be resolved with difficulty and will ultimately require a definitive legislative act or high court decision. In the interim, the local bar association, the medical society, and the judiciary could work out a mutually acceptable method of properly compensating the subpoenaed Arkansas physician who is being called as an expert witness.

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Office Orthopaedics

Reflex Dystrophy

H. Austin Grimes, M.D.*

Reflex dystrophy has been known by various synonyms, such as Sudeck's atrophy, post-traumatic osteoporosis, reflex nervous atrophy, Homan's minor causalgia, chronic segmental angiopasm, post-traumatic pain syndrome, sympathalgia, shoulder-hand syndrome, and chronic traumatic edema. There are probably other synonyms, but these are some of the more common, most of which are no longer used but all fall under the general classification of a reflex dystrophy, whether major or minor. Some dystrophic changes occur in all patients following trauma or surgery or both to the bones and joints; most are quickly altered by return to normal activity. Those in which normal activity is delayed, recovery and rehabilitation are prolonged. Because of this delay, it is occasionally implied that the patient might be malingering. The basis of expectant return to work and recovery periods following fairly common injuries and surgical procedures, the employer, the insurance carrier, and even friends and relatives have an idea of the amount of time that it should require to return to these duties. Even some physicians tend to forget the prolonged recovery periods associated with reflex dystrophic changes which may occur most frequently in the 30 to 60 age group.

Dystrophic changes most often involve the hand and wrist or foot and ankle and are usually discernable on X-rays. When there is doubt, as with a post-menopausal female, then comparative X-ray views sometimes will show more porotic changes of bone in the affected limb.

In addition to the X-ray changes, the patient complains of sensory disturbances, hypothermia, vasomotor disturbances, marked edema, and one may find muscle atrophy, increased reflexes, change in cutaneous reflexes, hypotonia, muscle mechanical hyperexcitability, trophic changes of bone, skin, hair and nails.¹

Trueta feels the lack of muscle activity or appropriate muscle activity is probably the basis of the dystrophic changes of bone.⁴ Clawson, et al. attributed the dystrophic changes to a disturbance in the internuncial pool of the spinal cord with a frenzy of activity implicating the anterior and lateral horn cells, resulting in sympathetic hyperactivity and vasal spasm, muscle spasm, and increase of other reflex mechanisms.²

In major causalgia, which is most often due to an incomplete severance or damage, mechanical or chemical, to a major peripheral nerve, such as might occur with inadvertent injection of a drug into the sciatic nerve.

It is stated that these may be benefited by interruption of the sympathetic chain, either by cervical or lumbar sympathetic blocks, which when successful for short periods of time are occasionally followed by cervical or lumbar sympathectomies, which have varying degrees of effectiveness in control of this pain. In our experience, this has not been very successful in prolonged treatment of the reflex dystrophies of the major sort.

Treatment should be relegated toward early active muscle activity insofar as possible, even in the cast, when it will not interfere with the surgical procedure performed and very vigorous physical therapy and active use of the part by the patient

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after immobilization is complete. Isometric exercises within the cast are to be recommended on all procedures that would not be harmed by muscle contraction and encouragement to the patient to weightbear and increase this weightbearing as tolerated, especially when dystrophic changes are apparent. These people should be able to return to work prior to their complete recovery of the dystrophic changes; however, in certain occupations this may represent a hazard, such as iron workers, etc. Many employers allow a light duty period or rehabilitation of these patients in returning to work prior to returning to their regular duties. If they are returned to work in a hazardous environment or one that might promote re-injury, then close cooperation between the physician, employer and company medical personnel should be sought.

Other methods of treatment of the dystrophies in the more prolonged and more major type of causalgias are directed toward prevention of dependent edema, passive motion aided by faradic stimulation, occasional hospitalization to carry out intensive physical therapy programs, psycho-

therapy, along with reassurance with the physical therapy.

Reflex dystrophic changes are vexing to the patient and the treating physician, but by proper diagnosis and early active treatment of this disorder, along with understanding by the patient and his employer, eventual return to gainful employment and functional use of the extremity will be accomplished.

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New Football Rules and Athletic Injuries

James A. Arnold, M.D. and Tom P. Coker, M.D.

Rule changes have had a definite impact on the prevention of sports injuries. Fifteen fatalities were directly related to football during the year of 1975. Of the fifteen fatalities, one occurred in college, thirteen in high school, and one in sandlot football. These football fatalities have been gradually increasing with the associated football participation in recent years. All fifteen of the direct fatal injuries resulted from injuries to the head, neck, and spinal cord.

For many years, medical associations have cautioned coaches of the hazards of blocking and tackling techniques with the use of helmet and/or face mask as the initial point of contact. It has been well-documented by the medical profession that techniques such as butt-blocking and face-tackling result in injuries of severe magnitude and are the leading cause of fatalities in football. Despite the public awareness of the dangers of head-hitting techniques, teaching techniques have continued to emphasize the head in football. In a study by the National Alliance Football Rules Committee in 1976, 38% of coaches responded that they teach blockers to make initial contact with their heads. "Spearing" is defined as "the

deliberate and malicious use of the head and helmet in an attempt to punish the ballplayer after his momentum has stopped". Spearing is committed by a defensive player.

A similar technique is sometimes used by the offensive player but goes by a different name. "Butt-blocking" (stick blocking or head blocking) is an offensive technique involving initial and sustained contact with the head as the primary blocking surface, either in the close line play or in the open field. Both practices are dangerous for both the player and his opponent.

With the advent of protective, hard-shell helmets, techniques of "spearing" and "butt-blocking" developed. This blocking and tackling technique was initiated because the helmet and face-mask were thought by some coaches to be sufficient armor to protect the head against injury. The player also is probably more prone to use this, since he feels his head and face are protected. The coach thought that spearing with the head would check the progress of the opponent more effectively than with the shoulder.

When tackling is done with the head, hyperflexion, hyperextension, or rotational injuries of the cervical spine may result, and, of course, the skull absorbs a great deal of impact with such a

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An illegal block under the 1976 NCAA rules

blow and intracranial lesions may result. A study by the National Federation of State High School Associations noted that the player improves his performance when he tackles with his head up. With the head up, the athlete has a good visual field and the least chance of a direct blow to the head and most effective muscular control of the neck. He is in an excellent position to stop the opponent by shoulder, chest, and arm strength. Conversely, in the flexed position, the athlete does not have the advantage of good vision and is likely to receive the full force of impact on his head instead of his shoulders and chest. He is more likely to hit lower on the opponent's body, including the opponent's vulnerable knees, as well as exposing his cervical spine to impact while it is in its weakest position.

1976 NCAA Football Rules

In 1976, the NCAA Football Rules Committee, in the best interest of the game of football, made stringent changes in the rules related to the use of the head. All changes are directed specifically to the protection of the player in injuries related to the head and neck. The new legal blocking posi-

tion rules are listed below and now "spearing" and "butt-blocking" are personal fouls, carrying a fifteen-yard penalty and ejection from the game for flagrant violation. The 1976 National Alliance Football Rules Committee, which formulates the rules of high school competition of forty-seven states, has also made "butt-blocking" and face tackling techniques personal fouls, and the penalty for each is fifteen yards.

The Code reads: "The football helmet is for the protection of the player and not to be used as a weapon." The American Football Coaches Association has stated: "(a) The helmet shall not be used as a primary point of contact in the teaching of blocking and tackling. (b) Self-propelled mechanical apparatuses should not be used in the teaching of blocking and tackling. (c) Greater emphasis by players, coaches, and officials should be placed on eliminating spearing."

In considering the importance of these new statements in the Code, the coach definitely now has a responsibility related to his teaching techniques on the practice field. When a head or neck injury is sustained in a game, the coach is accountable for clearly identifying that head-hitting techniques were not being taught. It also places emphasis on the teaching of techniques and separates his responsibility of coaching and that of the official, in that the official is to recognize the foul when it occurs.

It is hoped that there will be a great deal of carry-over from the practice field to the actual game itself. The official does not have to make a judgment as to whether the act is malicious or not with the new rulings. He also does not have to make a judgment as to whether the momentum of the player has stopped or not. The effect of this change broadens the definition of spearing and it reduces the judgment of the official to the extent that he must now determine only that the act is committed.

The new blocking rules are a dramatic change over what we have previously known. They are an outstanding movement of part of the Rules Committee in an attempt to write a rule which coaches can coach, players can play, and officials can reasonably officiate. It is a basic duty and responsibility that coaches teach football fundamentals and skills in an environment free from unnecessary hazards in order to minimize personal injury. Failure of the coaches to so instruct the

athletes would breach this duty and be possible grounds for negligent conduct litigation. Hopefully, this will mean return of the shoulder tackle and block, hence, more safety and protection for the players. Also, it should make for less late hitting, spearing, and hopefully, therefore, fewer injuries.

Shoulder tackles may help diminish the barrage of knee injuries as the extended neck and subsequent visual range may allow more accurate tackles. Prior ruling requiring blocking above the waist on punts and kick-off returns and subsequent increased visualization may assist in the reduction of these plaguing lower extremity injuries. These rules committees are to be commended for their injury awareness, and hopefully further awareness may help diminish athletic injuries in other areas. For example, the first year that the NCAA Rules Committee required mouth protec-

tors in college football, the dental surgery rate was cut approximately 75%. Further reinforcement in coaching techniques would be helpful in diminishing the "crack-back block", "blind-side" hits, and rolling block techniques to diminish the frequency of lower extremity injuries in football.

**New Legal Blocking Position
1976 NCAA Rules**

1. Hands in advance of elbows.
2. Hands inside the frame of blocker's body.
3. Hands below the shoulders of the blocker and his opponent.
4. Hands and arms parallel to the ground.
5. Arms shall not be extended more than one-half of full extension.
6. The hands should be cupped or closed with the palm not facing the opponent.
7. During no block shall the hands be locked.





Arkansas' Emergency Medical Services

Carolyn Schmidt*

In 1972, Arkansas ranked at the bottom of the ladder in providing its citizens with adequate Emergency Medical Services or pre-hospital emergency medical treatment and transportation. Since then, many interested Arkansans have worked diligently to raise the level of care to acceptable standards. After years of hard work, EMS Rules and Regulations were finally passed by the 1977 Arkansas General Assembly.

These regulations, required by Act 435 of 1975, are intended to ensure that ambulance personnel, equipment and vehicles are capable of providing quality patient care. Minimum standards are set forth, and levels of certification and licenses work as incentives for self-improvement.

Over 4,400 people have successfully completed approved basic emergency medical technician (EMT) courses. Arkansas' EMS program also has 22 advanced medical EMTs (paramedics), some of whom earned associate degrees in emergency medical technology (a two-year program). Many are employed by hospitals (emergency departments, intensive care units, etc), ambulance services and police and fire departments.

When the regulations became effective July 6, 1977, the Bureau of Emergency Health Services, Arkansas Department of Health, began inspecting each ambulance service and emergency vehicle and issuing licenses and permits in one of the 7 possible categories. They are classified as follows:

1. Class I — Advanced Ambulance Services
2. Class I-A — Ambulance Services
3. Class I-B — Ambulance Services
4. Class I-C — Ambulance Services

5. Volunteer
6. Special Purpose
7. Provisional

Another important aspect of EMS in Arkansas is the communications network. Four Resource Coordination Centers (RCCs) serve 21 counties. Anyone in these counties may call for emergency medical assistance by dialing the operator and asking for ENTERPRISE 8-900. In addition to dispatching calls to the nearest ambulance service, the trained RCC personnel can offer help over the phone, focus on all available resources in an emergency situation, record radio conversations and telephone traffic for back-up information.

An outreach effort to educate the public about the program and how to use it is an ongoing project. Literature on the program is distributed in each county to as many citizens as can be reached.

A unique data and evaluation system has also been developed. This reporting system is the only one of its kind in the United States. Each ambulance service is required to fill out an Encounter Form for each emergency run made. The information received includes the number and types of calls, locations of emergencies (i.e., highway accidents, home or recreation areas) and the type treatment that has been given. These facts can be used to help offenders know what equipment and supplies they need most and to show to local government officials in order to receive funding.

Arkansas has come a long way since 1972, but its citizens are still struggling to improve pre-hospital emergency medical care. The ultimate goal is to provide the necessary personnel and equipment so that no unnecessary deaths occur because of a sudden illness or injury.

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EDITORIAL

Treatment of Cancer of the Colon

Alfred Kahn, Jr., M.D.

Cancer of the colon is a very common disease, and a totally satisfactory treatment for it is yet to be found. What causes the body's resistance to be overcome by the agent (s) producing neoplasia is, of course, the fundamental problem. Opportunities for carcinogenesis must exist many times before neoplasia occurs. Obviously, the body's inherent resistance prevents this. Every cell exfoliated from cancer does not cause a metastasis.

Assuming an imbalance in the ratio of the invasiveness of the neoplasm to the resistance of the body — and assuming a tumor of the colon forms — what is to be done? "The treatment of cancer of the large intestine" is the subject of a review by Wallack, Brown, Rosata and Rosata (*Surgery, Gynecology and Obstetrics*, Volume 142, page 97, January, 1976).

The relationship of polyps and cancer is discussed. The big question is, of course, do polyps undergo malignant degeneration, or is there some underlying disorder which produces both the polyp and the cancer. There is no answer for this. Then there is the matter of familial polyposis. This appears to be a very dangerous disease; cancer of the colon develops in almost 100% according to Wallack. A virtually total colectomy is advised. The rectum can be left, but it has to be observed frequently by proctoscopy. Villous adenoma apparently have a malignant potential; very complete removal is recommended. The authors relate adenomatous polyp's risk to the size of the polyp; polyps one centimeter in diameter have virtually no minimal risk of cancer — in fact, the mortality of the surgery might be higher. Polyps that are up to one and one-half centimeters can be watched and if they grow, removal is suggested. Polyps two centimeters in diameter should be ex-

cised; the authors feel that the safest treatment of a polyp is excision. The means of detecting polyps include plain barium x-rays, air contrast barium x-rays, and fiberoptic colonoscope; of 303 polypectomies reported by this method, 46 patients in the 218 examined had atypia or carcinoma. Ulcerative colitis is associated with a distressingly high incidence of carcinoma if the disease has been present ten years or more; the greater the colitis involvement, the greater the risk of cancer. Ten to twenty percent of these cases develop carcinoma each decade after ten years and the five year survival rate is quoted at only fifteen percent after surgery.

Wallack reports that most cancers are in the rectum and can be reached by scopes; carcinoma may be multicentric occasionally. Death from colon carcinoma is usually due to distant metastases.

The signs and symptoms of colon cancer are reviewed briefly and all are well-known to most physicians. Right-sided cancers cause blood loss and left-sided cancers produce pain. There are numerous variants.

The relationship of blood in the stool to carcinoma has been investigated many times in the past. Wallack indicates there is some benefit in investigating properly prepared patients who have repeatedly had positive tests for blood in the stool.

Diagnosis of colon cancer by endoscopy and radiography are still the standard methods.

Immunology has been tried as a means of detecting colon carcinoma. The current antigen found in patients with carcinoma is also found in other colonic disease, and even cancer of the ovary, lung, and pancreas. There is apparent value in a quantitative test for carcinoembryonic

antigen if one has a known cancer case and metastases are sought; it tends to be high in metastatic disease.

Surgery is the only recommended treatment for colon cancer. The overall prognosis is said to be twenty-five percent for five years. Wallack reports tumor size does not relate well to survival, but wall penetration, venous invasion, annular lesions, and lymph node involvement do relate to survival.

The authors state that the so-called second look operation about one year after initial surgery has not really increased survival. The use of radiation has been recommended by some authors — both

pre- and post-operative radiation have been recommended. Of interest was the suggestion that certain steps in the surgical technique, such as venous ligation and the avoidance of manipulation, seem to cut down the dissemination of tumor cells. Drug therapy using Five Fluoro-Uracil has been successful in palliation; it is effective with intravenous usage. Continuous infusion of organs attacked by cancer has been tried with some regression of disease — not cure.

Cancer of the colon typifies cancer elsewhere — it can be both cured or palliated depending on the invasiveness of the tumor and the resistance of the host.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Determined to curb rising hospital costs, the Congress has opened hearings on legislation proposed by Sen. Herman Talmadge (D-Ga.) that would institute a prospective reimbursement plan for the nation's hospitals. The Talmadge bill is considered a rival of the Administration's proposal to place a nine percent "cap" on hospital revenues.

The Administration has told the Senate Finance Subcommittee on Health, headed by Talmadge, that it likes some provisions of the Talmadge bill but that it is imperative that the controversial "cap" proposal be enacted, perhaps with features of the Talmadge bill included.

Most health provider groups, including the American Medical Association, found the Talmadge plan much more palatable than the Administration's bill though they took issue with some of the Talmadge provisions.

Raymond T. Holden, M.D., Chairman of the AMA Board of Trustees, told the Subcommittee "we commend the sponsors of this legislation for its broad coverage of a variety of issues in the Medi-

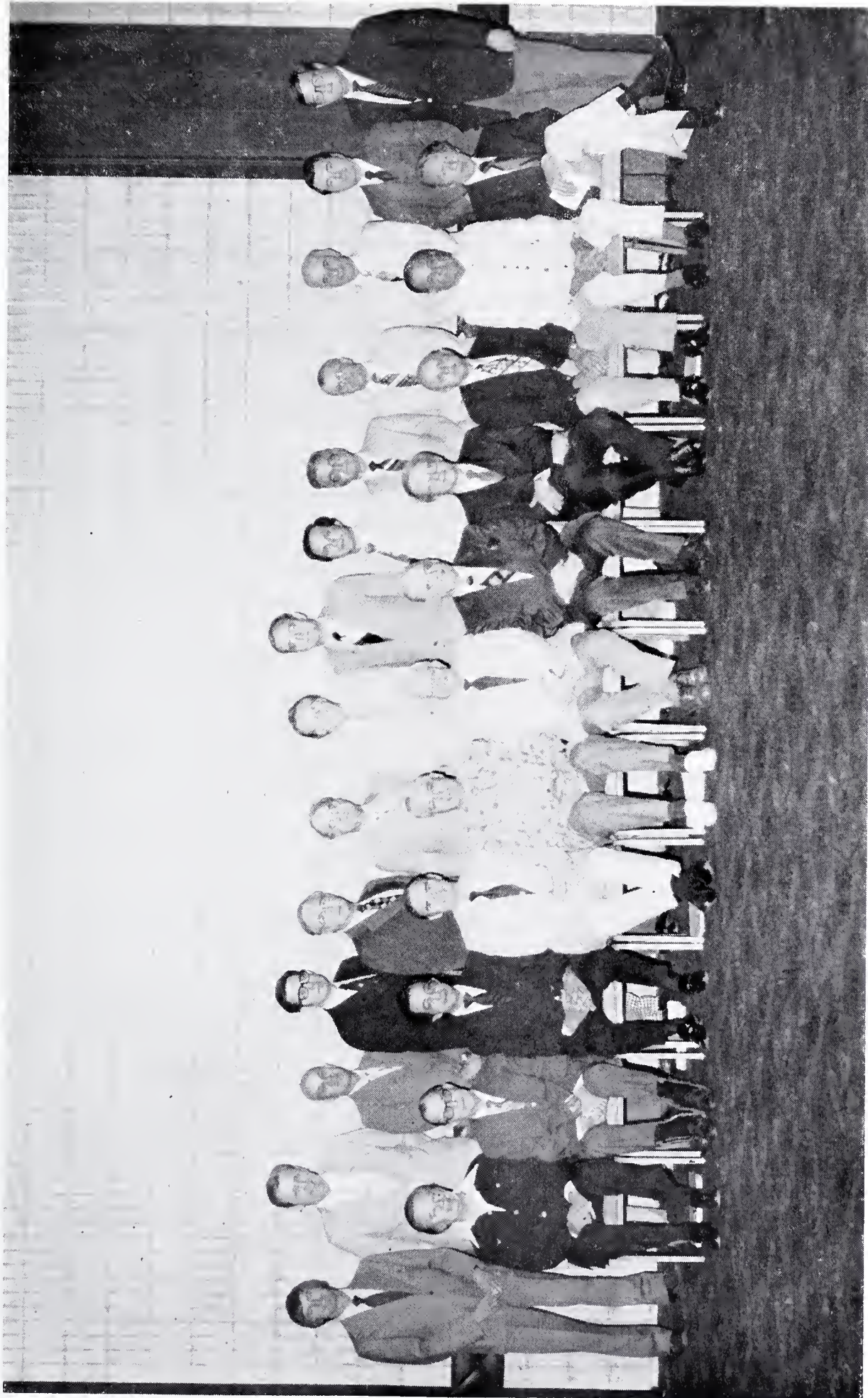
care and Medicaid programs." While there are some provisions the AMA does not support, "there are many others which we believe would be beneficial and for which we urge your favorable consideration," Dr. Holden testified.

The Administration's arbitrary ceiling or "cap" on total hospital revenues "lacks appropriate flexibility, provides disincentives for efficiency and in fact would reward inefficiency," said Dr. Holden. "Most importantly that proposal would impact unfavorably most directly upon the continued provision of quality care."

The Talmadge provisions "attempt to meet the hospital cost problem in a more positive and equitable manner than that of the Administration," Dr. Holden said. "However, notwithstanding our belief that the Talmadge bill is a more realistic program, we do believe that adoption of the program in the manner presently proposed could have uncertain and perhaps even undesirable effects."

"Risks of any single new program imposed nationally are not warranted at this time especially when there are other potential alternatives which

COUNCIL OF THE SOCIETY FOR 1977-78



Seated, left to right, Councilors William S. Orr, Little Rock; Paul Grav, Batesville; Kemal Kutait, Fort Smith; and Morris Henry, Fayetteville; Ken Lilly, Fort Smith, First Vice President; W. Payton Kolb, Little Rock, President; George F. Wynne, Warren, President-elect; John P. Burge, Lake Village, Chairman of the Council; A. E. Andrews, Texarkana, Councilor; Secretary Elvin Shufield, Little Rock; Councilor Rhys Williams, Harrison; (Standing, left to right) Councilors John E. Bell, Searcy; L. J. Pat Bell, Helena; Speaker Anail Chudy, North Little Rock; Councilors Raymond Irwin, Pine Bluff; John B. Kirkley, Jonesboro; Merrill J. Osborne, Blytheville; Curtis B. Clark, Sheridan; John H. Moore, El Dorado; David L. Lockhart, Forrest City; Treasurer Kenneth R. Duzan, Pine Bluff; Councilors J. B. Jameson, Camden; C. Lynn Harris, Hope; W. Ray Jouett, Little Rock; and Third Vice President, A. Henry Thomas of Little Rock.

merit similar consideration," Dr. Holden said. "Experiments with various reimbursement methods have not been fully implemented and evaluated. We would recommend that the cost containment incentive program of this bill be the subject of experiment and demonstration in a limited geographic area before being considered for nationwide application. We feel that all interested parties would benefit from such a procedure."

The AMA witness termed "beneficial" another provision encouraging the voluntary elimination of underutilized beds and the closing of facilities or parts thereof.

Dr. Holden said "we also recognize the problem of increasing health costs and are seeking solutions." He noted the AMA's establishment of a National Commission on the Costs of Medical Care, which will examine the causes of medical care cost inflation and recommend policies that will contribute to containment of medical expenditures. The final report will be issued in January, 1978.

Also appearing for the AMA was Edgar T. Beddingfield, Jr., M.D., Chairman of the AMA Council on Legislation. Dr. Beddingfield said several provisions of the bill on physician reimbursement "could have a detrimental effect on the availability and quality of care." The proposed creation of a special class of practitioners, designated as "participating physicians", though somewhat modified this year, would still cover those who agreed to accept all Medicare reimbursement for their services on the basis of assignments. Inducements such as simplified claims procedures would be offered to encourage physicians to become "participating physicians."

Dr. Beddingfield said the proposal "does not reach the issue of why assignments are not widely accepted. The major deterrent to assignments is the insufficient reimbursement rate under Medicare and this proposal does not correct this problem."

Also criticized was the proposed Talmadge criteria for determining Medicare reasonable charges for physicians' services which would allow the government to determine statewide prevailing charge levels for each state, based on 50 percent of the charges made for similar services in the state. Prevailing charge levels in a locality would continue

to be subject to an economic index, but any increase in the prevailing charge level could not exceed the statewide prevailing charge by more than one-third.

"The real effect of this change," Dr. Beddingfield said, "would be a further restriction on reimbursement levels in the state achieved primarily through a reduction in the already limited increases which would otherwise be allowed under the Medicare Economic Index."

The Administration has damned the Talmadge bill with faint praise. Recognizing that Talmadge's measure poses a serious threat to the Administration's controversial Hospital Cost Containment Plan, HEW Secretary Califano devoted a great deal of his testimony during the hearings to plugging the Administration's approach. He had praise for some facets of the Talmadge bill, expressing the hope the two approaches could be melded, but his criticism of the key prospective hospital reimbursement provision was so strong that a marriage may be difficult.

Califano said the Talmadge reimbursement plan suffers from lack of available data and methodology to put it into effect. "Further, it only covers about 35-40 percent (Medicare-Medicaid) of present hospital costs, and will not, in our judgment, effectively control costs in the immediate future," said Califano.

The Talmadge plan could cost up to \$50 million more next fiscal year, in contrast with the estimated national savings of \$1.9 billion for the Administration's Hospital Cost Containment Act, according to the Cabinet Officer.

"We feel strongly that the problem of rising costs is of such disastrous proportions that we simply cannot wait for a perfect solution before acting," Califano testified.

The Administration supports the concept of prospective reimbursement of hospitals, he said, but "holding down Medicare and Medicaid payments alone could simply encourage hospitals to refuse these patients, to provide such patients with second-class care, or to transfer their costs to other payors."

In other testimony, John Alexander McMahon, President of the American Hospital Association, said the Talmadge bill overall "reflects an understanding and consideration" of the complexities of the health care delivery system. However, Mc-

Mahon said the AHA objects to some provisions. He singled out the proposed uniform percentage limits on increases in revenues which "would exert the heaviest pressures where they are least appropriate — on the most efficient hospitals."

* * * *

Physician fees eventually may need cost controls, HEW Secretary Califano has told Congress.

"Eventually the health care system will have to deal with physician fees," the Secretary told the Senate Finance Subcommittee on Health.

Califano said he and President Carter considered controls on physician fees as well as hospitals earlier this year but rejected them "because we just don't know yet how to deal with that problem."

Califano also opposed a provision in the Medicare-Medicaid reform bill by Subcommittee Chairman Talmadge which would lift the legal requirement for publishing the names and income of physicians and other Medicare providers. The HEW official said "sunshine is the greatest disinfectant," referring to the so-called Sunshine, or Freedom of Information Law.

Talmadge said he would withdraw the provision "if you (Califano) guarantee the accuracy" of future reports.

Califano noted that he apologized to the AMA for the high rate of error in this year's report and that a revised and corrected list would be published.

* * * *

The Medicare-Medicaid anti-fraud and abuse legislation is winding through a complicated pathway in two powerful house committees — Ways and Means and Commerce. Both committees have jurisdiction over the bill before it reaches the floor.

The Ways and Means Committee is ready to report a bill and the full Commerce Committee is preparing to act also. One major difference between the committees, not yet resolved, is the degree of access federal investigators will have to patient records for the purposes of fraud and abuse investigations and epidemiological surveys.

The Senate will not take up the measure until the House completes its work on the bill.

* * * *

In an effort to boost the new Office of Inspector General, HEW Secretary Califano has charged

that fraud and abuse by physicians and pharmacists in the Medicaid program "is a serious problem."

He said "this conclusion emerges from an innovative, systematic two-month-old investigative effort working in cooperation with the new Health Care Financing Administration."

Califano said that through computers programmed to flag suspicious cases in state Medicaid files, 172 cases have been identified involving "what appear to be the worst physician and pharmacist offenders against the Medicaid system." He did not release any names.

The 172 cases warrant further investigation and may lead to prosecution, according to the Secretary. They are spread over 45 states and the District of Columbia. Ninety-two cases involve physicians, and 80 deal with pharmacists.

The new computerized system has allowed HEW to screen 252 million transactions over a twelve-month period involving 231,000 physicians (108 million claims) and 44,000 pharmacies (141 million claims).

The goal of the new investigation — which is called "Project Integrity" is to identify 500 cases of apparently flagrant physician and pharmacist fraud or abuse in Medicaid.

Physicians and pharmacies were chosen as initial targets of the new computer investigation "because computer programs were already available for application of the innovative techniques."

Physicians and pharmacies receive about 16 percent of Medicaid expenditures (which total \$18 billion this year, including a \$7.8 billion state share). Estimates of fraud and abuse in Medicaid are estimated at between \$800 and \$900 million annually, said Califano.

* * * *

Renewed prospects of Administration activity next year on national health insurance has spurred Congressional interest in the issue. At last count 22 lawmakers from both parties have co-sponsored the AMA's comprehensive health insurance plan for all, bringing to 30 the number of Senators and Representatives who have backed the proposal officially.

Early next year, the Carter Administration will submit its own NHI plan. President Carter and HEW Secretary Califano have said they will make a determined effort to secure Congressional enactment.

Major hearings on NHI are a certainty in Congress next year. Though time will be a severe problem, there is a chance of final action on some measure.

The AMA proposal is designed to insure that all Americans receive private health insurance and financial protection against catastrophic illness. Federal contribution to premium cost would be geared to income. Federal intervention is kept to a minimum. Standards of benefits would have to be met by all insurance plans.

The AMA plan was first dropped in the hopper by Sen. Clifford Hansen (R-Wyo.), and Reps. Tim Lee Carter, M.D. (R-KY), John Duncan (R-Tenn.), and John Murphy (D-NY).

* * * *

"The Federal Trade Commission is not a health or medical agency," FTC Chairman Michael Pertschuk has told a conference on competition in health care.

The business of the FTC is business, and we recognize, along with most Americans, that the delivery of health care is business, an industry of vast proportions and vital effect. Health care has become our business."

Mr. Pertschuk opened a two-day conference, sponsored by the FTC which rarely holds such events, with a reference to the AMA.

"The FTC is now in the process of receiving documents subpoenaed from the AMA, and certain state and local medical societies. Our intention is to learn how self-regulation — professional control over voluntary and state agencies — really works. There is reasonable doubt that the medical profession, by itself or through friendly state governments, is completely open to innovation, competition, quality control, or consumer choice."

* * * *

Julius Richmond, M.D., the newly appointed Assistant Secretary for Health at the HEW Department, also will bear the title — long considered moribund — of U.S. Surgeon General. This post hadn't been filled for several years. Though Dr. Richmond isn't a career Public Health Service officer, the resurrection of the title brought joy to the Uniform Corps which has been under constant threat of extinction but has managed to survive. The Surgeon General is the top official of the Corps.

* * * *

DR. FAAS RECEIVES GRANT

The American Diabetes Association has presented a research grant to Dr. Fred Faas of Little Rock. He is a research associate at the Veterans Administration Hospital and has been studying the fat metabolism differences in diabetic and nondiabetic animals under various drugs.



THINGS TO COME



SUPERCOURSE ON LUNG DISEASE

The Third Annual New Orleans International "Mardi Gras" SUPERCOURSE on Lung Disease will be January 23-27, 1978, at the Braniff Place Hotel. The course is sponsored by the American Lung Association of Louisiana and its medical section, the American Thoracic Society of Louisiana.

SUPERCOURSE is accredited by the American Medical Association in Category I, the American Academy of Family Physicians, and the American Association for Critical-Care Nurses. The five-day program consists of three separate lung disease courses running concurrently during the week.

Advance tuition for the program is \$185.00. For additional information and complete program, write:

American Thoracic Society of Louisiana
333 Saint Charles Avenue, Suite 500
New Orleans, Louisiana 70130

CARDIOPATHY SYMPOSIUM

Cardiopathy of Aging IV (Heart disease in the elderly patient) will be presented in Little Rock, Arkansas, on May 16-17, 1978, by the Veterans Administration, the University of Arkansas College of Medicine, the Council on Clinical Cardiology of the American Heart Association, and the Tri-State Scientific Sessions of the American Heart Association. Information regarding this symposium may be obtained from —

Dr. J. E. Doherty, Program Director
Cardiopathy of Aging IV
300 East Roosevelt Road
Little Rock, Arkansas 72206



PERSONAL AND NEWS ITEMS

DR. MAHONEY RECEIVES AWARD

Dr. Paul L. Mahoney, Jr., Harrison, has been awarded the American Medical Association Physician's Recognition Award for his participation in accredited continuing medical education programs.

OFFICERS INSTALLED

Dr. George Warren of Smackover was installed as president of the Arkansas Chapter of the American Academy of Family Physicians at the annual meeting in Little Rock in July. Dr. James Weber of Jacksonville was chosen president-elect. Other officers installed were Dr. Mahlon Maris of Harrison, vice-president, and Dr. James Patrick of Fayetteville, secretary-treasurer.

DR. SIMPSON MOVES

Dr. Thomas Simpson recently opened his new office building at 620 North Spring in Harrison. Dr. Simpson has practiced Obstetrics and Gynecology in Harrison for five years.

NEW APPOINTEES TO STATE BOARD

Dr. H. W. Keisker of Jonesboro and Dr. Bob G. Banister of Conway have been appointed to the State Board of Health for terms to expire December 31, 1980.

NEW PHYSICIAN FOR HARRIS CLINIC

Dr. Anthony B. Junkin, a 1971 graduate of the University of Arkansas College of Medicine, has joined the staff of the Harris Hospital and Clinic in Newport. Prior to moving to Newport, Dr. Junkin was affiliated with the teaching staff of the family practice residency program at the United States Naval Hospital in Charleston, South Carolina.

DR. MILLER SPEAKS

Dr. Donald Miller, director of the Area Health Education Center in Pine Bluff, recently spoke to the Pine Bluff Rotary Club regarding the AHEC program.

PATHOLOGIST TO DeQUEEN

Dr. Leland Dodd has established a private pathology laboratory in DeQueen. He was formerly the Assistant Professor of Pathology and Assistant Medical Examiner for the State of Arkansas in Little Rock. Dr. Dodd is a native of

Fort Smith and a graduate of the University of Arkansas College of Medicine.

INTERNIST FOR BATESVILLE

Dr. Paul Baxley is a new Internist associated with the White River Diagnostic Clinic in Batesville. He is a native of North Little Rock and was graduated from the University of Arkansas College of Medicine in 1974.

TWO PHYSICIANS ADDED

Drs. Robert W. Fore and Allen Dale Kincheloe have recently been added to the staff of St. Joseph's Mercy Medical Center in Hot Springs. Dr. Fore is a Radiologist and a native of Pine Bluff. Dr. Kincheloe is associated with Drs. Thomas M. Durham and DuBose Murray, specializing in Orthopaedic Surgery.

DR. McKELVEY OPENS CLINIC

Dr. Richard E. McKelvey began the practice of General Surgery at 416 Sevier in Clarksville in July. He was graduated from the University of Arkansas College of Medicine and served as staff surgeon at the Little Rock Veterans Administration Hospital in Little Rock prior to moving to Clarksville.

DR. SHRADER RETURNS

Dr. Floyd Shrader has returned to West Memphis after a two-year absence. He had practiced medicine in West Memphis until 1975, when he moved to Enid, Oklahoma. He is a Family Practitioner and has his office at 200 South Rhodes.

DR. HAYNES SPEAKS

Dr. Ducote Haynes of Little Rock addressed the Colonial Chapter of the National Secretaries Association recently. Dr. Haynes discussed the science of X-rays.

DRS. HALLER BEGIN SECOND TOUR

Drs. Nancy and Harold Haller have elected to stay for another tour of duty at the Newton County Medical Center in Jasper. They were assigned to Jasper by the National Health Service Corps. This will be their third year on staff at the center.

DR. SALTZMAN INSTALLS OFFICERS

Dr. Ben Saltzman installed the new officers of the Harrison Rotary Club for the twenty-sixth

consecutive year. Dr. Saltzman is a Past Governor of District 611 in Rotary International.

PHYSICIANS FOR CLINTON

Drs. Layne E. Collums, Jr., and Larry Jennings will begin private practice in the Clinton community in the fall of 1977. New offices are being built in Clinton to accommodate the physicians.

DOCTOR BUILDS UNIQUE HOUSE

Dr. Howard J. Barnhard is building a very unique house. It is designed to utilize energy sources to the maximum, both externally and internally. The roof line is sloped at a 42.5 degree angle from one side to the other. The structure overhangs its one-story foundation by three to four feet on all four sides. Dr. Barnhard is a Little Rock Radiologist and has taken an active and enthusiastic part in the design and construction of his future home. The house is on a pine-covered hilltop overlooking Lake Maumelle west of Little Rock.

DR. BAKER TO BATESVILLE

Dr. J. R. Baker, a graduate of the University of Arkansas College of Medicine, has begun Family Practice in the Medical Arts Building at Batesville. He is the son of Dr. Clark M. Baker of Paragould.

MARIANNA GAINS PHYSICIAN

Dr. Barbara Gail Kennedy, a Pediatrician, has joined the staff of the Lee County Cooperative Clinic in Marianna. She is a native of Florida and received her medical education and training at Meharry Medical College in Nashville, Tennessee.

FOUR PHYSICIANS ADDED

Hot Springs has gained four additional physicians. Three have joined the staff of the Burton-Eisele Clinic: Drs. John B. Simpson and Martin A. Koehn, Family Practitioners; and G. Dan Kimberlin, a Gynecologist.

Dr. Jon Mark Robert is a Pediatrician associated with the Children's Clinic.

DR. TIRMAN RECEIVES AWARD

Dr. Robert M. Tirman of the Department of Radiology at the University of Arkansas College of Medicine, recently received the Otolaryngology Teaching Award for 1977. The award was the first given by the Department of Otolaryngology at the College.

SURGEON TO JONESBORO

Dr. James Drake has joined the professional

staff of Craighead Memorial Hospital in Jonesboro. He is in the private practice of Surgery.

DR. JOHNSTON ELECTED

Dr. Gaither C. Johnston of Hot Springs was recently elected to the Board of Directors of the Arkansas Bank and Trust of Hot Springs.



PROCEEDINGS OF SOCIETIES

REPORT OF AMA ANNUAL CONVENTION

June 1977

San Francisco, California

by Purcell Smith, Jr., M.D.

This summary covers many of the subjects considered during the annual convention in San Francisco, but is not meant to be a complete report of all actions taken. The June 27 - July 4, 1977 issue of the American Medical News contains more comprehensive information.

ELECTIONS:

John H. Budd of Cleveland, Ohio, was installed as the AMA's 132nd president. Tom E. Nesbitt of Nashville, Tennessee, was named president-elect. William Y. Rial of Pennsylvania was elected speaker and Harrison L. Rogers, Jr., of Georgia was elected vice speaker of the House of Delegates. Re-elected to the Board of Trustees were Daniel T. Cloud of Arizona and Hoyt Gardner of Kentucky. Newly elected Trustees were Thomas Ballantine, Jr., of Massachusetts, George Mills of Hawaii, and Charles Max Cole of Texas.

REPORT OF THE AMA PRESIDENT:

Dr. John Budd, in his inaugural address, called on physicians to do their best for the public and medicine itself by acting "constructively and effectively for each other, through the AMA." He pointed out that "to be a counterweight to fed-

eral intervention we must have the collective weight of our profession" and he urged the delegates "to take formal and informal action in behalf of greater membership." Citing a double challenge, he said the AMA "must get behind any rational realistic means of curbing expenses" and it "must publicly pinpoint the basic relationship between medical costs and the quality, sufficiency and availability of medical services."

SUMMARY OF ACTIONS OF THE HOUSE OF DELEGATES:

I. ASSOCIATION AND INTERNAL MATTERS OF THE HOUSE:

Organizational changes: Steps toward new programing and broader representation were taken by the house of delegates in San Francisco. In one action it authorized the discontinuation (after the 1978 annual convention) of the scientific portion of June conventions, thus shifting resources to permit expansion of the winter scientific meeting and the regional scientific programs. This action was based on research showing physician continuing education preferences by time, season, location and format.

In another action the House of Delegates endorsed the concept of direct speciality society representation in the House of Delegates as a means of achieving greater unity; the Board of Trustees is to establish a steering committee to prepare for a meeting to consider how direct representation can be achieved.

Two new sections, the resident physicians section and the section on medical schools, held their first meetings in San Francisco.

In another action, the house considered the recommendation of the Council on Long-Range Planning that the association have a full time president, who would be the chief executive officer, and who would be appointed by the Board of Trustees and answer to the Board of Trustees. After considerable discussion, the matter was referred to the Board of Trustees for further study and report back to the House at the interim session this December.

Dues and Financial Matters: The House voted to continue the \$250 yearly dues for regular members, \$35 for residents, \$15 for medical students for the time being. A plan to set up uniform billing and collection rules for AMA was turned down by the House of Delegates, which ordered

the Board of Trustees to review the matter and draw up another plan.

II. PHYSICIANS AND THE GOVERNMENT:

Undesignated PSRO Areas: Physicians in undesignated PSRO areas were urged by the AMA House of Delegates to review their decisions on establishing physician control PSROs. After January 1, 1978 the HEW secretary will be authorized to name qualified alternate organizations as PSROs in areas where one is not sponsored by physicians. Such areas exist in eight states. The House approved criteria for alternate PSROs and called on the AMA to urge their adoption by HEW.

In other actions, the House (1) approved opposition to the administration's hospital cost containment legislation and (2) called for consideration of possible legislation that would require federal hospitals and health maintenance organizations to participate in the same regulatory processes as do non-federal hospitals; (3) continued to oppose mandatory patient package inserts for drugs approved for marketing by the FDA and (4) supported legislative or regulatory measures to permit continued marketing of saccharin as a food additive or over-the-counter product with a warning label.

III. PHYSICIANS AND THE PUBLIC:

National Health Insurance: Support for the AMA's comprehensive (not national) Health Insurance proposal was reaffirmed by the House of Delegates. The Delegates also endorsed a resolution pledging that the AMA fight any effort to "nationalize" the medical profession. An unexpected development was the result of a new poll conducted by the AMA itself, that bolstered the argument that many physicians do not like the AMA proposal.

Public Information Campaign: A vigorous public information campaign on all aspects of the health care system was called for by the House. To achieve maximum participation, the House asked the Board of Trustees to give the delegates in state associations a "detailed demonstration" of a program within 90 days.

Laetrile: The House of Delegates approved a statement that Laetrile is a substance that has no proven value as a drug.

In other actions, the House (1) adopted principles for national immunization programs and

stressed its high priority; (2) urged state and local medical societies to work with schools to develop methods of referral to physicians so that fragmented and disjointed screening programs can be avoided; (3) adopted a judicial council statement regarding medical management of terminal illness, euthanasia, "right to die," and so forth.

IV. *PHYSICIANS AND HOSPITALS AND MEDICAL SCHOOLS:*

The House of Delegates reaffirmed its previous position that medical residents are both students

and employees under the National Labor Relations act.

V. *MISCELLANEOUS ACTIONS OF THE HOUSE:*

Miscellaneous House actions includes:

1. Acknowledgment of contribution of \$1,512,566 to AMA Education and Research Foundation by American Medical Association Auxiliary.

2. Recognition of a very active year by AMPAC.



NEW MEMBERS

JAMES P. ELKINS, M.D.

Dr. James P. Elkins is a new member of the Benton County Medical Society. A native of El Dorado, he received his B.S. degree in microbiology and his M.D. degree from the University of Arkansas Medical Center.

Dr. Elkins served his internship at St. John's Hospital in Tulsa, Oklahoma, and completed his residency training at the University of Oklahoma Medical Center in Tulsa. He specializes in Obstetrics and Gynecology.

Dr. Elkins is associated with the Rogers Clinic for Women and Children at 1014 West Poplar in Rogers.

ROBERT E. FRASER, M.D.

Dr. Robert E. Fraser has been accepted into the membership of the Johnson County Medical Society. He is a native Arkansan, received his B.S. degree from the University of Central Arkansas, and was graduated from the University of Arkansas College of Medicine in 1975. He interned at Baptist Medical Center in Little Rock.

Dr. Fraser has been in Family Practice with the Clarksville Medical Group at 600 Lucas for one year.

DAN R. GARDNER, M.D.

The Faulkner County Medical Society has added Dr. Dan R. Gardner to its membership roll. Dr. Gardner was born in Little Rock and received his B.S. degree from the University of Arkansas at Fayetteville. In 1969, he was graduated from the University of Arkansas College of Medicine. Dr. Gardner interned at Jackson Memorial Hospital in Miami, Florida.

Dr. Gardner served in the United States Air Force from 1970 until 1973. After completing his military duty, he entered an Ophthalmology residency at the University of Tennessee.

Dr. Gardner is associated with Dr. Jimmie J. Magie at 1504 Caldwell in Conway.

RICHARD F. PLANT, M.D.

Dr. Richard F. Plant has been accepted into membership of the Ouachita County Medical Society. He was born in Clarendon, Arkansas, and received his B.A. degree from the University of Arkansas in 1956. In 1960, Dr. Plant was graduated from the University of Arkansas College of Medicine. He served in the United States Navy from 1961 to 1964, completing his internship at the San Diego Naval Hospital. His residency training in Obstetrics-Gynecology was received at the Grady Memorial Hospital in Atlanta, Georgia.

Prior to his return to Arkansas, Dr. Plant practiced in Quincy, Illinois; Madisonville, Kentucky; and Anderson, South Carolina. He is board certified in Gynecology and is in private

practice at 530 Jefferson in Camden. Dr. Plant is a Fellow of the American College of Obstetrics-Gynecology.

HENRY L. ROGERS, M.D.

The Jefferson County Medical Society has added Dr. Henry L. Rogers to its membership. He is a native of Monticello, Arkansas, and received his B.A. degree from the University of Arkansas in 1968. Dr. Rogers was graduated from the University of Arkansas College of Medicine in 1972. His internship and residency training in Internal Medicine were also at the University Medical Center.

Dr. Rogers is board certified and specializes in Internal Medicine and Gastroenterology at 1624 West 42nd Avenue in Pine Bluff.

DAVID G. SKAGERBERG, M.D.

Dr. David G. Skagerberg is a new member of the Sebastian County Medical Society. He was born in Minneapolis, Minnesota, and received his A.B. degree from Yale University. He was graduated from the University of Pennsylvania School of Medicine in 1953 and interned at the City and County Hospitals of San Francisco, California.

Dr. Skagerberg served in the United States Air Force from 1957 until 1960. Upon completion of his tour of duty, he entered orthopedic residency training at the University of Minnesota Hospital.

Dr. Skagerberg was in private practice at Lynwood, California, for thirteen years, and then Paramount and Lakewood, California, for three years prior to moving to Arkansas. He was Chief of the Department of Surgery at Paramount General Hospital and Chief of the Emergency Department of the Doctors' Hospital of Lakewood. He is board certified.

Dr. Skagerberg practices Orthopedic Surgery at Holt-Krock Clinic in Fort Smith.

JAMES DAVID WAYMAN, M.D.

Dr. J. David Wayman has entered an Obstetrics and Gynecologic residency at the University of Arkansas Medical Center. He has been extended membership in the Pulaski County Medical Society.

Dr. Wayman was graduated from the Oklahoma University School of Medicine in 1975 and resides at 22 Kingsbridge Way, Little Rock.

PULASKI COUNTY

The Pulaski County Medical Society has recently added seven new members to its membership roll. They are:

DR. RONALD L. BAKER was born in Pontiac, Michigan. He attended high school in Searcy and received his B.S. degree from Harding College in 1970. Dr. Baker was graduated from the University of Arkansas College of Medicine in 1974 and interned at St. Vincent Infirmary. Dr. Baker completed his Family Practice residency training at the University of Arkansas Medical Center in June 1977. He is in private practice at 2003 Fendley Drive in North Little Rock.

DR. TROY F. BARNETT is a native of Stuttgart. He attended the University of Arkansas in Fayetteville and, in 1968, received his M.D. degree from the University of Arkansas College of Medicine. Dr. Barnett completed his internship at the University of Miami in Florida. His residency training in Urology was at Tulane University in New Orleans, Louisiana. Dr. Barnett's office is located at 500 South University in Little Rock.

DR. WILLIAM W. CHILDS is a native of McNeil, Arkansas. He received his B.A. degree from Talladega College in Alabama in 1958 and was graduated from the University of Arkansas College of Medicine in 1962. He interned at Freedmen's Hospital, Washington, D. C. Dr. Childs is in General Practice at 1304-B Wright Avenue, Little Rock.

DR. BEN DOUGLAS JOHNSON was born in Henderson, Texas, and received his B.S. degree from Stephen F. Austin State University, Nacogdoches, Texas, in 1966. He received his M.D. degree from the University of Texas Medical School, San Antonio, in 1970. Dr. Johnson interned at the United States Air Force Hospital, Lackland Air Force Base, Texas. Dr. Johnson also did residency work in Internal Medicine at Lackland Air Force Base and was in residency training in Cardiology at Lackland Air Force Base until 1975.

Dr. Johnson is board certified in Internal Medicine and specializes in Cardiology. His office address is 500 South University in Little Rock.

DR. JAY M. LIPKE, a native of Chicago, ob-

tained his B.S. degree from the University of Illinois in 1977, and his M.D. degree from the University of Iowa College of Medicine in 1972. His internship was completed at the Valley Medical Center, Fresno, California.

Dr. Lipke received his orthopedic residency training at the University of Arkansas Medical Center. He is a clinical instructor at the Medical College. Dr. Lipke specializes in Orthopaedics at 601 North University, Little Rock.

DR. W. DALE MORRIS was born in Little Rock and attended school in Mabelvale. He received his B.S. degree in chemistry from Abilene Christian University in Texas. Dr. Morris was graduated from the University of Arkansas College of Medicine in 1965 and interned at the United States Air Force Hospital, Lackland Air Force Base, Texas.

Dr. Morris was in residency training at the University of Arkansas Medical Center in Gen-

eral Surgery from 1970 until 1974 and was a Thoracic Fellow in 1974-75. He is board certified. Dr. Morris serves as Assistant Professor of Surgery at the University of Arkansas. He practices General, Thoracic, and Vascular Surgery at 200 Medical Towers Building, Little Rock.

DR. RONALD N. WILLIAMS is associated with Neurological Surgery Associates at 750 Medical Towers Building, Little Rock. A native Arkansan, Dr. Williams received his B.A. degree from the University of Arkansas and was graduated from the University of Arkansas College of Medicine in 1968. He had one year in a Neurology residency at the University Hospital in Little Rock, one year in General Surgery and four years in Neurosurgery residency at the Medical Center.

Dr. Williams held a teaching appointment at the Department of Neurosurgery, National Naval Medical Center, from 1975 until 1977.



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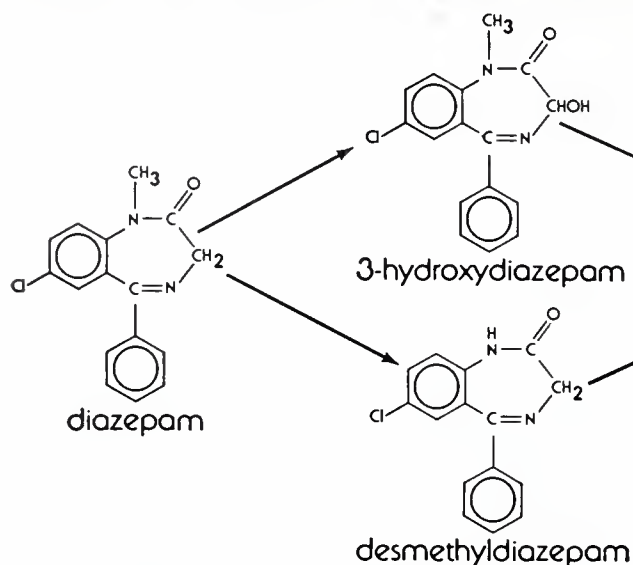


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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 74, No. 5. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Fort Smith, Arkansas, and at additional mailing offices.

Renal Cyst Puncture

John C. Holder, M.D.* and Nabil K. Bissada, M.D.**

I. Introduction

The problem of the diagnosis of renal mass lesions has long perplexed both urologists and radiologists. Prior to the development of intravenous urography, renal carcinomas could be found only when hematuria, pain, and an abdominal mass became apparent. Unfortunately, such tumors were often quite advanced when found and the patients usually could not be cured. Modern intravenous urography began in the late 1920's when Swick developed the first organically iodinated compound.¹ Swick's discovery was a vast improvement over the previously employed inorganic iodine compounds, which were not only quite toxic, but also provided poor visualization of the urinary tract. Other more recent discoveries include the development of even less toxic tri-iodinated contrast material plus a better understanding of renal physiology and how the kidney concentrates the contrast agents. Such knowledge has led to the use of more and more contrast material per examination and to more diagnostic information without added toxicity.

Nephrotomography added much to our ability to study masses, which alter the renal contour. Renal ultrasonography has come into its own in the last several years as a diagnostic modality, being particularly valuable in separating solid from cystic masses.

Once thought to be uncommon, it is now generally accepted that simple cysts are at least twice as common as renal carcinomas. As intravenous urography developed, more and more renal mass lesions were discovered to be simple cysts, though often surgery was required to make the diagnosis.

Simple cysts are currently considered to account for more than sixty percent of all renal mass lesions. The problem has been to differentiate simple renal cysts, which require no treatment, from renal malignancies. Selective renal angiography, which was developed to a fine art in the 1960's, became yet another tool to increase the accuracy of this differentiation. Some authors reported accuracy as high as 90%.² A number of cases were reported, however, in which an apparent simple cyst actually had developed a small carcinoma in its wall. Another possibility was a renal malignancy that had become cystic in its central portion via necrosis but whose periphery contained viable tumor. Since these conditions could present as benign conditions at urography and angiography, a more definite diagnostic test was needed. One answer has been renal cyst puncture.

Renal cyst puncture was first reported in 1939; anatomic landmarks were used to locate the cyst after urography.³ By the 1950's fluoroscopy was used to localize cysts for needle aspiration, which greatly increased the success rate. Within the last ten years renal ultrasound has aided the study of renal mass lesions. Employed for medical uses only after being developed for industrial and military purposes, ultrasound has proved most beneficial in differentiating solid from cystic mass lesions of the kidney. A special aspiration transducer makes possible puncture of the cyst without the use of contrast material or fluoroscopy. Since we do not have such a transducer for our machine, we have had no experience with its use. The limitation of ultrasound is that it is unable to tell the difference between blood, necrotic tumor (liquified) and the fluid of a simple cyst. It has been our policy to use ultrasound on every renal mass lesion to determine which should have renal angiography and which masses can be punctured.

The intravenous urogram is the screening ex-

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amination. If a renal mass is discovered on this examination, nephrotomography may then be employed to better ascertain the nature of the mass lesion (Fig. 1). Ultrasound is then used to determine whether the mass is solid or cystic. A solid mass is subjected to arteriography while a cystic mass is aspirated.

II. Methods

Urographic contrast is injected intravenously in order to obtain an intravenous urogram. A dose of 150 cc. of meglumine diatrizoate and sodium diatrizoate (Renografin 60) is used to

visualize the kidneys. The patient is then placed on the fluoroscopic table. A pillow is placed under the abdomen of thin patients; this tends to keep the kidneys pressed against the posterior abdominal wall. The skin over the side to be punctured is cleansed in the usual manner as for angiography. After the intravenous injection of contrast material is complete, the kidney to be studied is localized with fluoroscopy. With normal respiration the kidney will be seen to move several centimeters. A point on the skin is chosen which is over the renal lesion when the kidney is in mid inspiration. It is important that the central ray of the fluoroscope be centered over the renal lesion so as to prevent a distortion of the mass location. Should the mass lie directly under a rib it may be necessary to perform the examination in full inspiration or expiration. Local anesthetic is then placed in the skin, and a one quarter inch incision made. Local anesthesia may be placed deeper if necessary. A 20 ga. 4- or 6-inch needle containing an inner solid core and an outer plastic catheter is used for the puncture.¹ The exact depth of the cyst may be determined from the renal ultrasound study. At this depth plus one to two cm., a needle stop is

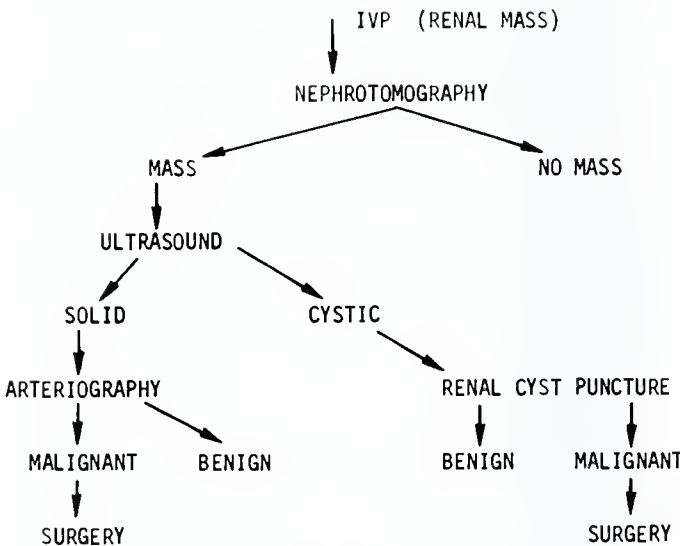


Figure 1. The above flow chart demonstrates the place of ultrasound in the evaluation of a renal mass.

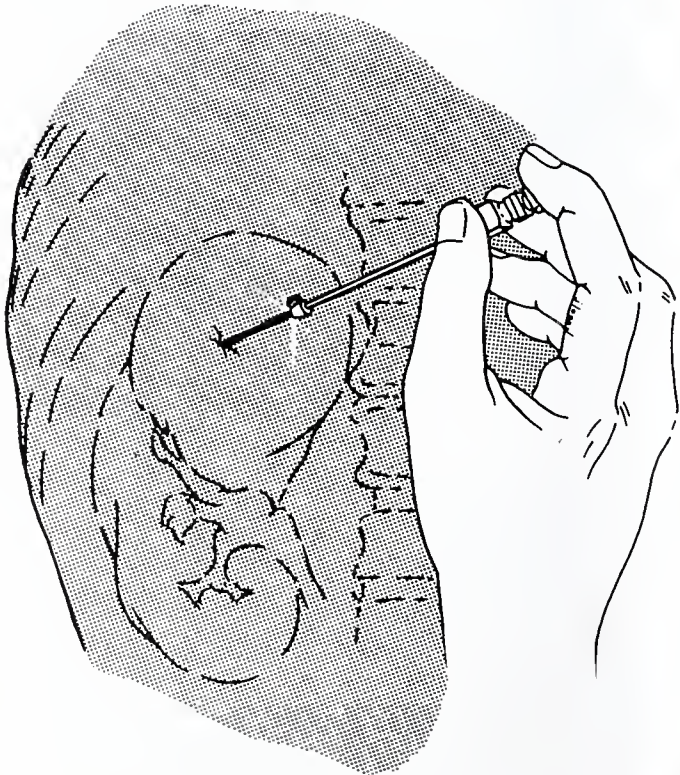


Figure 2. The position of the hand and cyst puncture needle is shown in relation to the renal cyst. The needle should be perpendicular to the cyst and respiration suspended.



Figure 3A. Intravenous urogram of the right kidney showing a mass in the midportion splaying the calyces (arrows).

1. Longdwel, T. M. — Becton, Dickinson and Co.

placed over the needle. The renal lesion is then centered under the needle and the patient instructed to suspend respiration.

There are two methods for advancing the needle. The first of these is with the hand and intermittent fluoroscopy (Fig. 2). The second is to use a long pair of hemostats on the needle hub and observe the mass constantly during the placement of the needle. As the needle is small in size, it will tend to wander.

The needle is then advanced in one smooth motion to the needle stop. With respiration still suspended, the inner metal portions of the needle are removed. The patient is then told to breathe normally. Cyst fluid is usually under pressure and will flow without aspiration. At this point, fluid samples are obtained for cytology and histologic examination. The fluid from benign cysts is nearly always clear and yellow. The fluid from malignant cysts is thick and dark as a rule. The incidence of neoplasms in cysts containing bloody fluid is about 25 percent.⁷

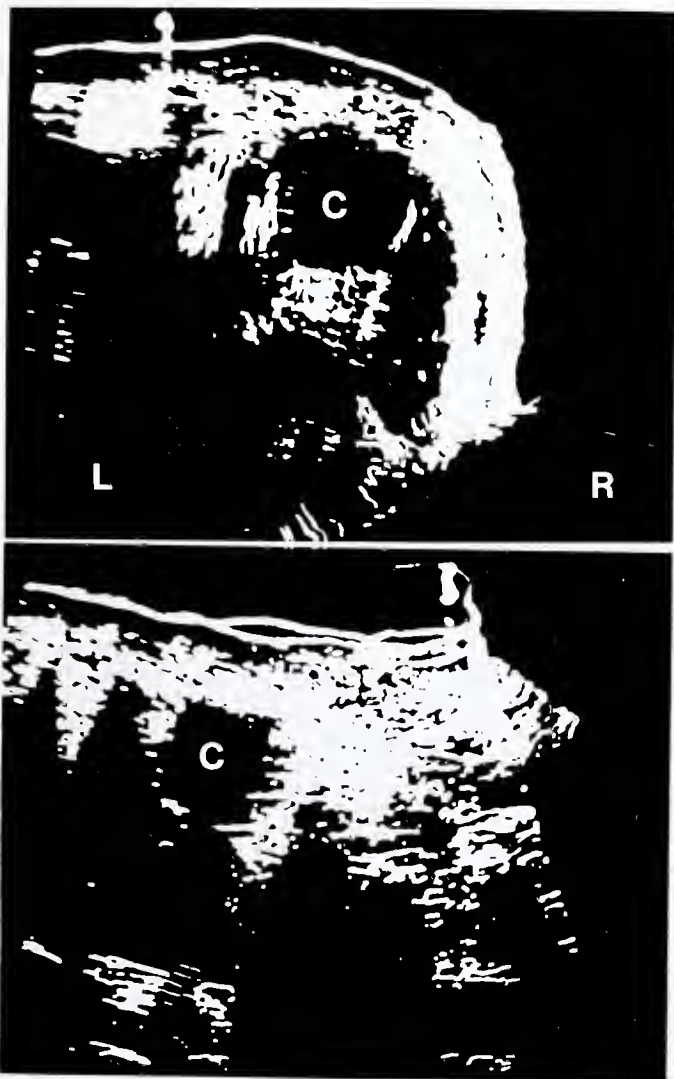


Figure 3B, C.

Transverse (3B) and longitudinal (3C) ultrasound demonstrating a sonolucent cyst (C). R—right, L—left.

As fluid is removed, it is replaced with equal volumes of Renografin 76 until approximately one third of the cyst has been filled. The cyst fluid is exchanged for room air until no more cyst fluid can be aspirated. It is important not to put more contrast material and air into the cyst than cyst fluid removed, as rupture of the cyst is possible. Five cross table films are then obtained.

These include:

1. Right lateral decubitus
2. Left lateral decubitus
3. Prone
4. Supine
5. Upright

These films allow all portions of the cyst wall to be seen with air contrast.

Potential complications of renal cyst puncture are few but real. The cyst puncture needle may serve as a lacerating instrument on the kidney while fixed in the posterior muscles if the kidney moves. Therefore it is important that the patient understand exactly what to do. Another theoretical complication is the puncturing of bowel. This would be due to too deep a puncture. We know from intra abdominal gas injections that the occasional puncture of a loop of bowel is usually without consequence.

It has been our practice not to place aspiration



Figure 3D.

Nephrographic phase of a selective right renal angiogram showing "beaks" of normal renal tissue, consistent with a renal cyst.

needles into masses which appear to be solid by other modalities. If a mass is aspirated and no fluid obtained, this is fairly good evidence that a solid tumor is present. It is important, however, to be certain that the needle tip is indeed

in the mass lesion in question. The needle may be withdrawn and the catheter left in place filled with contrast material. Posterior-anterior and cross-table lateral films are then obtained to be certain the needle tip or catheter tip is indeed in the mass. Vigorous aspiration may produce a few drops of dark blood in the syringe. Contrast has been injected into tumors in vivo revealing neoplastic vasculature. It is theoretically possible that tumor cells could be implanted along the needle tract. This has not been reported, however.

Occasionally a kidney will be encountered containing multiple cysts. The problem then arises as to how many cysts to attempt to aspirate. It is necessary to account for all the mass lesions in the kidney as being cysts if possible. Several apparent separate cysts may communicate when contrast material is introduced, thus eliminating the need for separate aspirations. If more than three or four separate aspirations are necessary, an arteriogram of the kidney should be included in the workup. It goes without saying that polycystic kidneys should not be aspirated.

The aspiration of blood or bloody fluid presents yet another problem. If the blood is bright red, it probably means that a small vessel has been lacerated while entering the cyst, and this

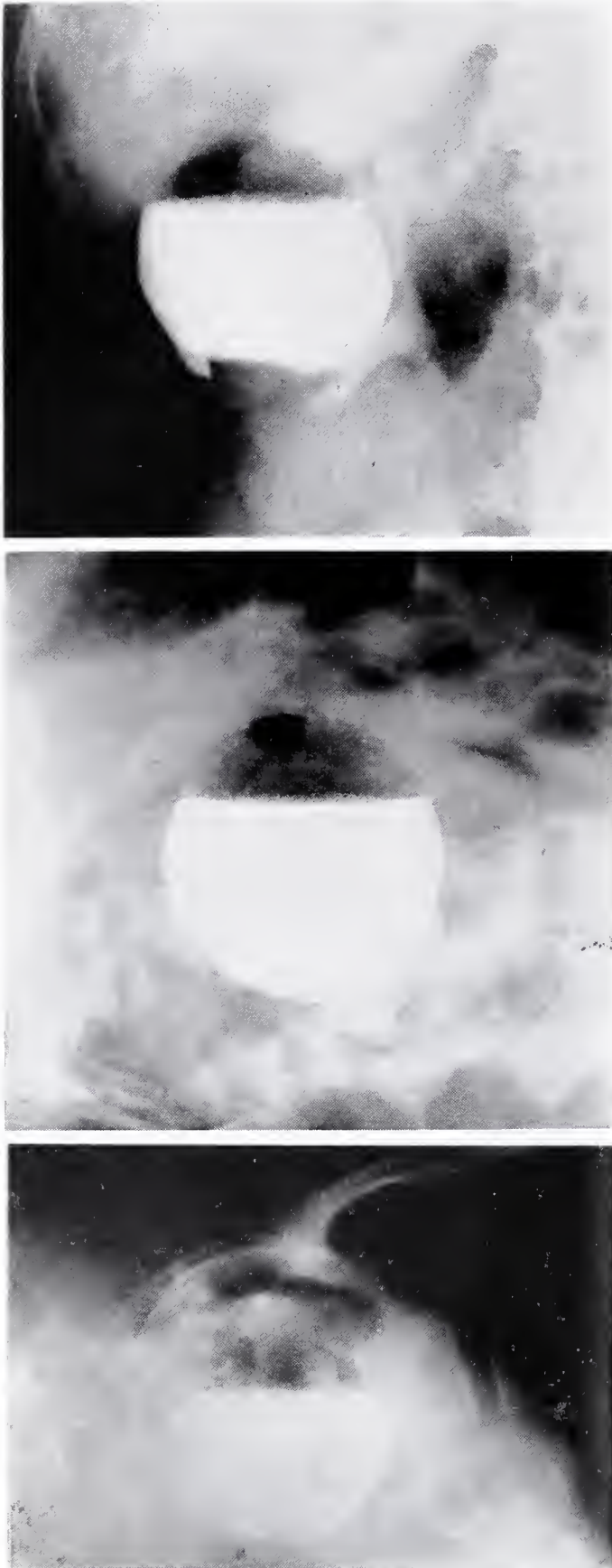


Figure 3F, F, G.

Upright, supine, and prone films with contrast material and air in the cyst.



Figure 4A.

Nephrographic phase of a selective right renal angiogram showing a "beak" (arrow).

will often clear quickly. This, however, is not an indication to terminate the examination. Rarely a thick, dark brown fluid will be aspirated from the cystic mass. Again the examination should be continued. This dark brown fluid either represents liquified tumor secondary to necrosis or degenerated blood from hemorrhage into the cyst at some time in the past. In either case histologic examination of the fluid is helpful.



Figure 4B, C.

Prone (4B) and upright (4C) films showing the cyst to have a smooth wall.

The non-visualized kidney presents another diagnostic problem. If ultrasound shows the kidney to be cystic, cyst aspiration has a place in the diagnosis. Injection of the cystic mass may demonstrate a site of obstruction in the renal pelvis or ureter.

Most simple renal cysts are located in the lower poles of the kidneys. Fewer cysts are found in the upper poles. The spleen should be located on the plain films, and, if interposed between a left renal cyst and the posterior abdominal wall, the puncture should be avoided. Also, small cysts (less than 3 cm) should probably not be aspirated in the upper poles due to the increased number of aspiration attempts which will probably be required.

Complications of properly carried out renal aspirations are minimal. A few patients have experienced hematuria, which cleared within a few hours. In the past there were scattered reports of renal lacerations and emergency nephrectomies associated with renal cyst aspiration. These were associated with large caliber straight needles without catheters. In some of our patients we



Figure 5A.

Nephrotomogram of the right kidney showing a poorly defined mass in the upper pole of the right kidney.

have placed a few cubic cm. of Pantopaque in the cysts. This has been reported to sclerose the cyst walls and prevent recurrence.⁴ Several of our patients have had fever of 102-103 degrees for up to 24 hours following introduction of this material. The fever subsided spontaneously. We have experienced no serious complications with renal cyst aspiration.

III. Results (cases)

Case I was a 47-year-old female who was in the process of evaluation for donating a kidney to a family member. Routine intravenous urography revealed a mass lesion in the right kidney (Fig. 3A). It was decided to use the left kidney as the one to be donated. Ultrasound studies on the right kidney were carried out showing a cystic mass at a depth of 4 cm. (Fig. 3B, C). Aortography was carried out to determine the number

of renal arteries to each kidney together with selective angiography of the right kidney (Fig. 3D). It was considered necessary by the Nephrology Service that all efforts be made to show that the mass in the remaining kidney was indeed a simple cyst. A renal cyst puncture was then undertaken and the cyst fluid aspirated and submitted for examination for malignant cells (Fig. 3E, F, G). Cystology was negative for malignant cells.

Case II was a 39-year-old woman being followed for urinary tract infections. On intravenous urography a small mass lesion was suspected in the lower pole of the right kidney. Angiography demonstrated an avascular mass and a "beak" sign suggestive of a cyst (Fig. 4A). Ultrasound showed the lesion to be 12 cm. deep. An extra long (6 inch) aspiration needle was employed, and a 4 cm. cyst containing clear fluid was found (Fig. 4B, C). Cytology was negative.

The 76-year-old male in Case III was admitted for workup and repair of a hydrocele. Routine



Figure 5B
Prominent capsular vessels are present on the selective right renal angiogram, but no neovascularity.

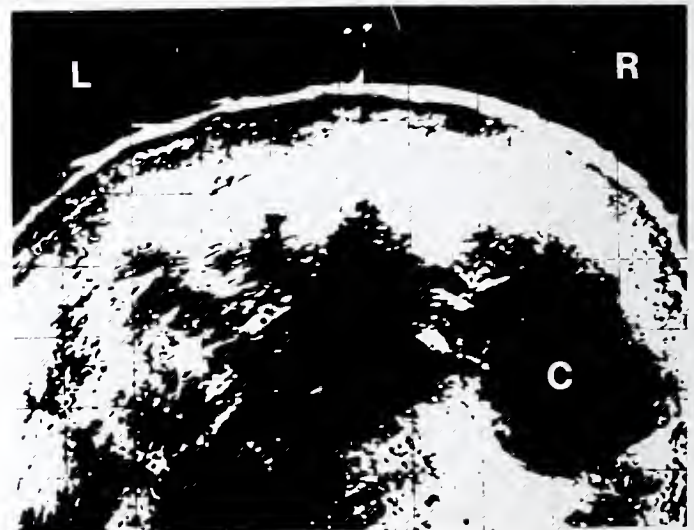
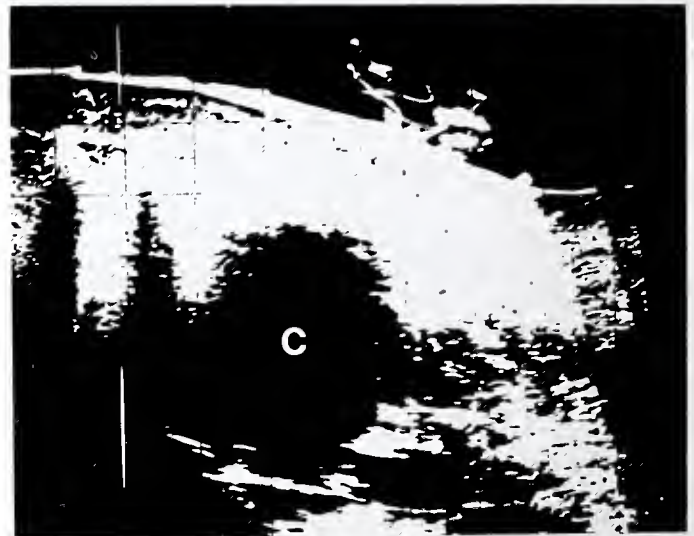


Figure 5C, D.
Longitudinal (5C) and transverse (5D) ultrasound scans. The mass lesion (C) is sonolucent.

intravenous urography with nephrotomography revealed a large mass lesion of the right upper pole. Findings were not suggestive of a cyst as no "beaks" of renal tissue or a thin cyst wall was defined (Fig. 5A). Angiography showed an apparent "avascular" mass with prominent capsular vessels (Fig. 5B). Ultrasound revealed a

sonolucent mass lesion (Fig. 5C, D). Cyst puncture was carried out to rule out tumor. 6 cc. of Pantopaque was injected into the cyst at the conclusion of the procedure (Fig. 5E, F). This has been shown to sclerose the cyst and cause them to collapse in 60% of cases.⁴

The patient in Case IV was admitted for a hernia repair. During the workup the patient complained of right flank pain, and an intravenous urogram was obtained (Fig. 6A). This demonstrated a large (9 cm) mass, apparently smooth walled, in the lower pole of the right kidney. Ultrasound of the mass revealed an apparently cystic mass consistent with a simple cyst (Fig. 6B). Cyst puncture was recommended, but instead an angiogram was obtained (Fig. 6C). An avascular mass was seen, but no "beaks" were noted. The patient was then taken for exploratory surgery. The mass was exposed via a flank incision. At surgery, aspiration of the "cyst" revealed a dark brown liquid which turned out to be necrotic tumor and blood. During removal the mass ruptured. In retrospect, cyst puncture, in this case, could have established a diagnosis of



Figure 5E, F.

Cyst puncture films with the Pantopaque seen in the dependent portion of the cyst (arrows).



Figure 6A.

Intravenous urogram showing a large mass lesion involving the lower pole.

malignancy and a more radical operation would have been performed.

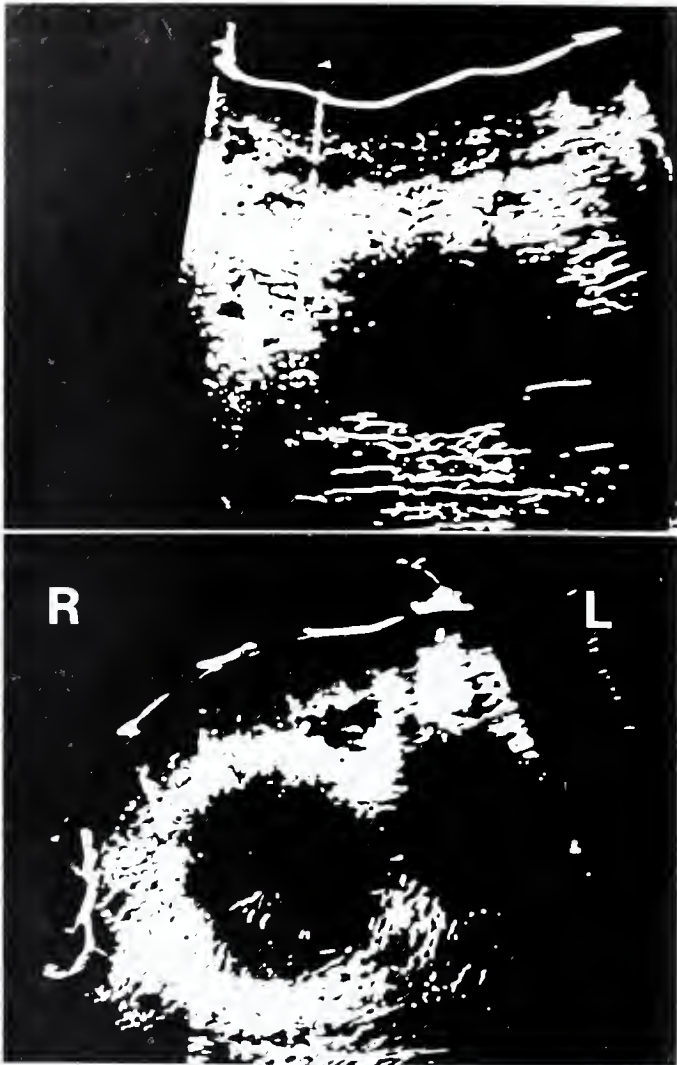


Figure 6B.

Longitudinal (top) and transverse (bottom) ultrasound scans demonstrate a few scattered echos in the mass. These were not considered important at the time. They are probably due to blood clots.

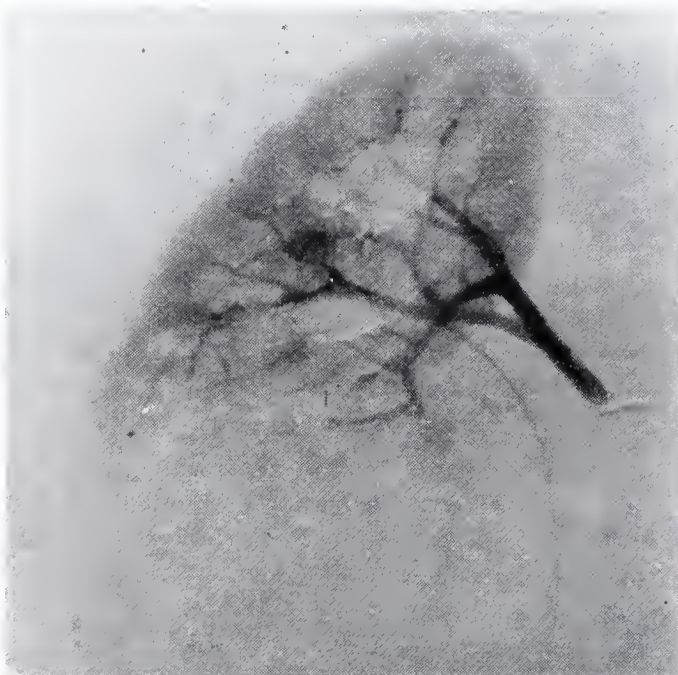


Figure 6C.

Selective right renal angiogram showing a prominent capsular vessel and a lack of "beaks."

Case V is an example of benign hemorrhagic cyst. As with the previous cases, this mass was asymptomatic and was discovered during an evaluation for benign prostatic enlargement. Angiography (Fig. 7A) was followed by percutaneous aspiration, which revealed a dark brown fluid that was easily aspirated through the catheter. Contrast material and air were then exchanged for the cyst fluid and the previously described decubitus and upright films obtained (Fig. 7B, C). A smooth walled cavity is easily seen. Cytology was negative for malignant cells. Degenerating blood was found in the aspirate, thus eliminating a traumatic tap as the cause of the bleeding. This is a recognized entity and in one large series of cyst punctures, 5.8% of the cysts were of this type.⁵

IV. Discussion

The problem of proper diagnosis and treatment of renal mass lesions is not an easy one. They are commonly encountered in the practice of urology and radiology, usually in asymptomatic patients. It then becomes necessary to rule out a neoplasm.



Figure 7A.

Selective left renal angiogram revealing a lack of neoplastic vessels in the region of the cyst.

Carefully carried out intravenous urography and nephrotomography and ultrasonography have a diagnostic accuracy of at least 90%. Renal angiography will increase this to 95%. Renal cyst aspiration together with proper histological analysis and double contrast radiography is as good as surgical exploration of a mass lesion.⁶ In view of the significantly lower morbidity for a properly carried out renal cyst aspiration, as compared to exploratory surgery, cyst puncture should be utilized to establish a definitive diagnosis of any asymptomatic renal mass when the other diagnostic modalities point toward a cystic lesion.^{7,8} Exploration should be reserved for symptomatic cases, or those in whom urographic, tomographic, ultrasonic, or angiographic studies are not consistent with a benign cystic lesion.

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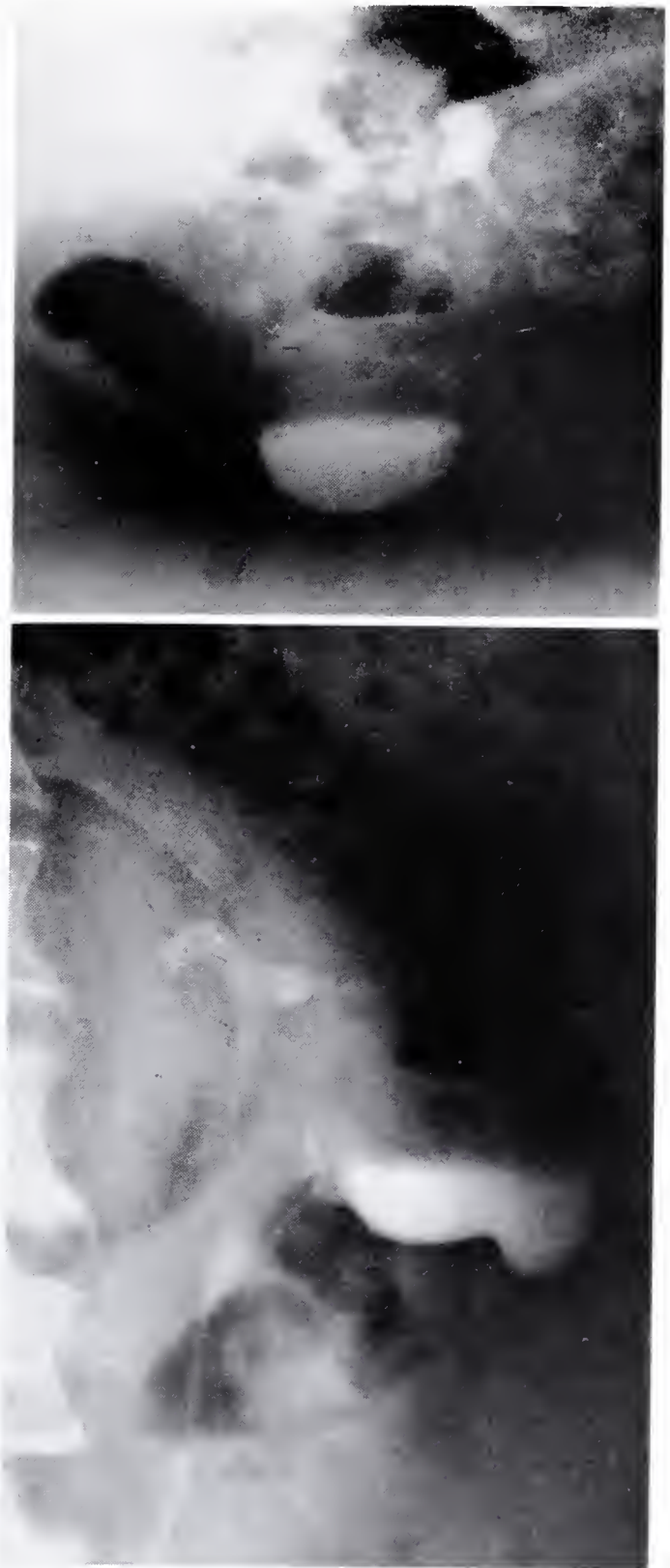


Figure 7B, C.
Left lateral decubitus (7B) and upright (7C) films showing "triple contrast" with air, cyst fluid, and contrast material.



Influenza in Arkansas 1976-77

Paul C. White, Jr., M.D.*, Estelle B. Moses** and Mark E. White, M.D.***

The responsibility for conducting a statewide influenza immunization program, in cooperation with the National Influenza Immunization Program, was assumed by the Arkansas Department of Health. Within the structure of the Department of Health, there was in existence an Immunization Program which is part of the Division of Communicable Disease Control. This section was assigned the responsibility for administering the influenza program. The U. S. Public Health Service awarded a grant to the Arkansas Department of Health to conduct a statewide program.

Methods

The State was divided into five regions and Pulaski County. Ten additional, temporary, personnel were employed to assist the six permanent staff members. Each region was staffed by one permanent and two temporary staff members. Pulaski County was covered by the central office personnel.

The field representatives visited each county and established local immunization committees. They worked with the committee chairman and the local health department to coordinate their county programs. Industry and institutions were contacted and assisted in planning and scheduling industrial clinics.

An influenza advisory committee was appointed consisting of physicians representing the State Medical Society, private practice, health department, medical school, veterans hospital and children's hospital. This committee met on two occasions and furnished technical guidance and established policy for the program.

Vaccine was received the first of October and was distributed to the local health departments which served as distribution centers for their respective areas. Initially, the vaccine was made available to all physicians in the State, institutions, and industry. The first mass public clinics were held on 16 October and the last on 12 December. In addition to the above clinics, vaccine was also provided at the regularly scheduled im-

munization clinics in all local health departments.

Surveillance for influenza was increased. All physicians were instructed to notify the Department of Health if they saw cases of influenza-like illness. Hospitals and emergency rooms were instructed to report. Schools and industry were encouraged to report increased absenteeism. Arrangements were made to collect viral specimens and to submit them to the virology laboratory at UAMS for isolation and confirmation.

Results

The total number of doses of influenza vaccine administered was 185,260 which accounted for 9.2 percent of the total population. Nineteen percent of the high risk population was immunized and 5.7 percent of the non-risk population. Health departments in mass clinics and in their regular immunization clinics administered 52.3 percent of the vaccine and private physicians 47.7 percent. The acceptance of influenza vaccine by county ranged from 22.3 percent to 1.4 percent. In general, counties with a predominately higher percentage of the population in the older group had a higher acceptance.

During November, seven cases of Guillain-Barre' Syndrome (GBS) were reported by the U. S. Public Health Service. Preliminary findings indicated an increase in GBS among vaccinees. The Center for Disease Control requested all states to investigate and report all cases of GBS occurring since the influenza immunization program began on October 1, 1976. In Arkansas, a total of six cases were documented, two males and four females, with an age range of 38 to 68 years. The dates of onset occurred in October (1), November (2), and December (3). Four of the six had been immunized: three with Monovalent A, and one with B/Hong Kong. The time of onset from date of immunization was three weeks for two, four weeks for one, and ten weeks for one. The latter received B/Hong Kong. There were no deaths. (See Table I.)

Beginning the last week of January, reports were received from eastern counties reporting school absenteeism reaching 30 to 40 percent. The absenteeism was related to an influenza-like illness with the most prevalent symptoms being

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temperature, sore throat, and cough of two to three days duration. The course of illness was reported as mild to moderate in severity with no sequelae. A total of 41 counties reported excess

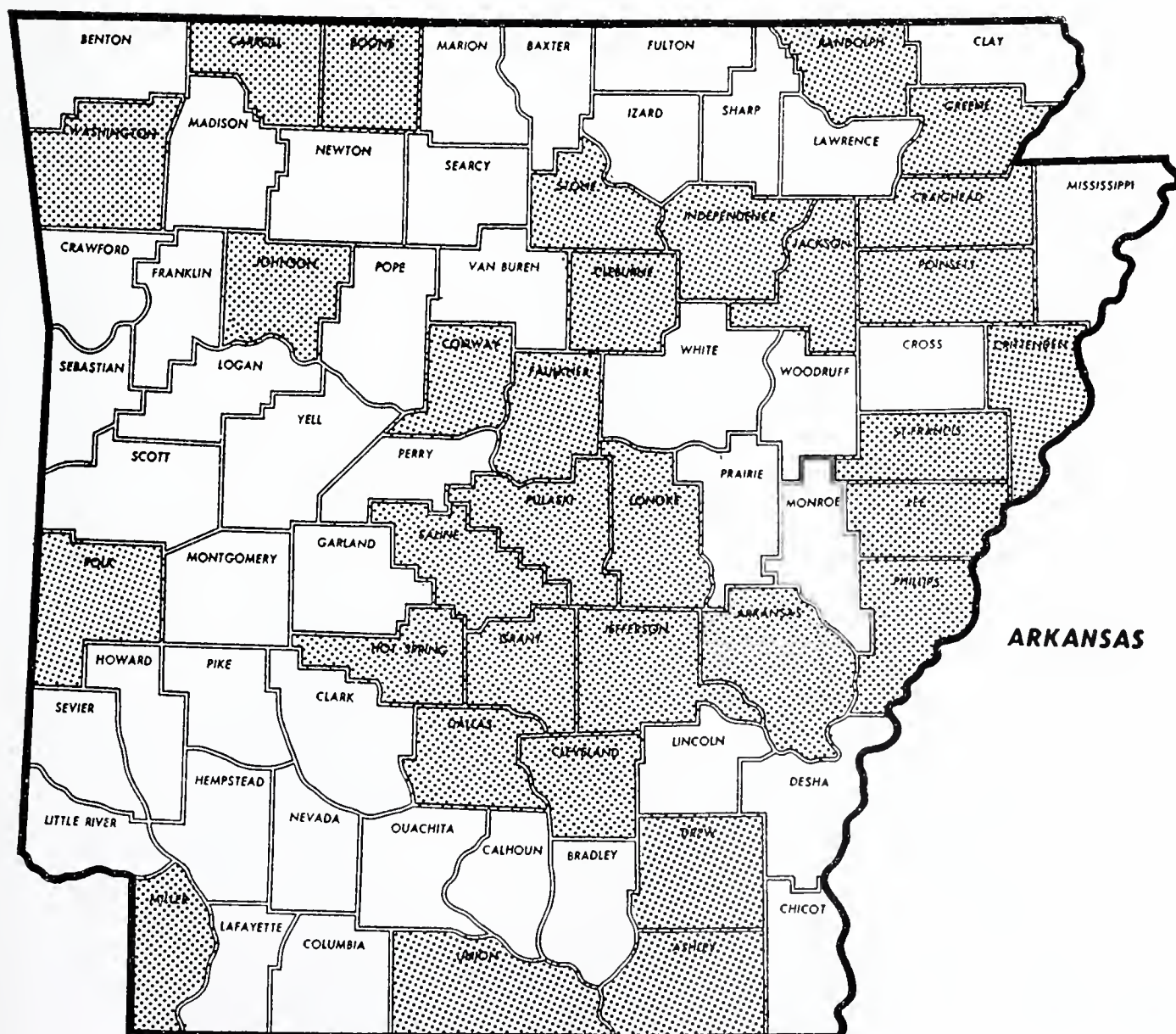
school absenteeism and private physicians also confirmed seeing an increase in influenza-like illness, primarily in school age children. The last county that reported was on the first of March. Several school districts closed their schools for a short period of time due to the excess absenteeism.

Throat washings and swabs were obtained for virus isolation and paired sera for serologic confirmation. Specimens were collected from 172 cases in 32 counties. (See Figure 1.) Of this number 73/172 were positive either by virus isolation or 4-fold rise in antibody titer in paired sera. There were 52/102 paired sera and 21/71 virus isolation specimens positive. All positive specimens were influenza type B with the exception

TABLE 1.
REPORTED GUILLAIN-BARRE'
SYNDROME CASES ARKANSAS
October 1, 1976 through May 31, 1977
Total Cases — 6

Age	Sex	Type of Vaccine	Date Immunized	Date of Onset	Interval
56	M	—	Not immunized	10/24/76	—
68	M	—	Not immunized	11/10/76	—
40	F	Monovalent A	11/08/76	11/15/76	3 weeks
38	F	Monovalent A	11/19/76	12/05/76	3 weeks
65	F	Monovalent A	11/19/76	12/15/76	4 weeks
57	F	B/Hong Kong	10/05/76	12/16/76	10 weeks

FIGURE 1.
COUNTIES IN ARKANSAS
WITH ISOLATES AND/OR SEROLOGICAL CONFIRMATION OF INFLUENZA
JANUARY THROUGH MARCH 1977



of one set of paired sera which was positive for influenza type A (Table II).

In two of the patients studied the virus was isolated from autopsy specimens. One was a three-year-old child who died after a lingering illness following encephalitis. The isolation was from spleen and muscle tissue. The other was a 24-year-old female with a Reye syndrome-like illness in which influenza type B was recovered from muscle and lung tissue, also from a tracheal washing taken shortly before she expired.

With the widespread occurrence of B influenza throughout most of the nation, the U. S. Public Health Service requested that all states intensify their surveillance for cases of Reye syndrome (RS) and its relation to influenza infection. In Arkansas, there have been six documented cases reported since the first of January, 1977. Three cases occurred in February and three in March. Four were in females and two in males with the age span from 11 months to 24 years. There were three deaths (see Table III). One of the fatal cases occurred in a 24-year-old female.

Discussion

More than 46 million doses of influenza vaccine were administered during the influenza season beginning the first of October, 1976. The percentage of the population immunized by states ranged from less than ten percent to more than 80 percent.¹ In Arkansas, 185,260 doses of vaccine were administered which represented 9.2 percent of the total population and 19 percent of the high-risk population. Vaccine was made available through private physicians, public clinics, institutions and industry throughout the state. All available type of public media were used to inform the citizens of the state as to the availability of the vaccine and the potential hazards of an influenza epidemic. The low acceptance of the vaccine can be attributed in some degree to the publicity associated with the deaths in Pennsylvania and the suspension of the program due to the GBS.

The preliminary findings indicating an association of GBS among recipients of influenza vaccine resulted in a suspension of the national program on December 16 until further investigations were completed. GBS is not a reportable condition; therefore, an evaluation of the reported cases and their true relationship to having received vaccine was difficult because of the lack of data from previous years. A review of all GBS

TABLE II.
COUNTIES SUBMITTING SPECIMENS FOR
INFLUENZA STUDIES AND THE RESULTS

County	Total Specimens Tested	Number of Pos. Paired Sera*	Number of Isolates
Arkansas	3	2	0
Ashley	6	4	0
Boone	2	0	0
Carroll	2	1	0
Cleburne	4	4	0
Cleveland	2	1	1
Conway	2	1	0
Craighead	2	0	0
Crittenden	4	4	0
Dallas	6	3	0
Drew	12	2	0
Faulkner	1	0	0
Grant	2	1	0
Greene	7	6	0
Hot Spring	2	0	0
Independence	1	0	0
Jackson	7	3	0
Jefferson	29	3	6
Johnson	1	0	0
Lee	5	4	0
Lonoke	6	0	0
Miller	12	0	0
Phillips	2	1	0
Poinsett	4	3	0
Polk	1	1	0
Pulaski	35	2**	14
Randolph	2	0	0
Saline	2	1	0
St. Francis	1	0	0
Stone	1	0	0
Union	5	4	0
Washington	1	1	0
TOTAL	172	52	21

* 4-fold titer rise to B influenza.

** One specimen of A influenza.

TABLE III.
REPORTED REYES SYNDROME CASES,
ARKANSAS 1977

Total Cases — 6

Age	Sex	Date of Onset	Influenza Positive Serology	Positive Culture	Died
12	F	02/08/77	—	—	No
11 mos.	M	02/11/77	—	—	Yes
11	F	02/23/77	B	B	No
8	F	03/01/77	—	—	No
24	F	03/01/77	—	B	Yes
1	M	03/22/77	—	—	Yes

cases in the United States from October 1, 1976, through January 31, 1977, revealed a total of 997 cases. Of this number, 490 had been vaccinated prior to onset of symptoms with A/New Jersey vaccine; six with influenza type B and nine with other influenza vaccines. Non-immunized cases totaled 477. Nearly 60 percent of the cases had their onset of GBS 2-3 weeks after vaccination, with the highest attack rates occurring in the 25-44 year old age group. The six cases in Arkansas had onset of symptoms that were somewhat longer ranging from three to ten weeks for the four who were known to have received immunizations. The age group of the six cases was older than that reported nationally as having the highest attack rate. Only two fell within the 25-44 year old age group. The age span was 38 to 68 years. There were no deaths reported in the six cases which is less than the national average. The latter was about four percent for both immunized and non-immunized. Overall, the relative risk of GBS among the vaccinated was 12 times that in the unvaccinated. No significant difference in risk was found between mono and bivalent vaccines.²

While the cause of GBS is not known, two-thirds of patients with it report some sort of health event days or weeks preceding the onset of the syndrome. The prodromal events include at least 150 different conditions ranging from malignant tumors to common respiratory infections. In a review of 1,100 cases of 1966, Leneman, listing the numerous prodromal events, noted that one person had received influenza vaccine.³

Reye syndrome was described in 1963.⁴ The etiology of the syndrome remains unknown; however, an antecedent viral-like illness has been noted prior to the onset of symptoms. Many viruses including influenza type A and B have been associated with this antecedent illness. The association with type B influenza has been well documented in a 1971 outbreak of RS in Chicago⁵ and a nationwide outbreak in 1974.⁶ With the occurrence of widespread influenza B activity during the past influenza season, the surveillance for RS was intensified. During the period of January 1 through June 3, 1977, there have been a total of 308 cases or suspected cases reported to the Center for Disease Control. Of this number, 171 have been confirmed, 37 percent died, 51 percent recovered and an additional 12 per-

cent recovered but have some neurological sequelae. The number of cases peaked during the first and second weeks of February. Less than 10 percent have been documented as having had influenza.⁷ Of the six cases reported in Arkansas for the first six months of the year, three occurred in February and three in March which corresponds with the national reporting. Two of the cases were documented by laboratory studies as having an antecedent illness of influenza type B.

The anticipated pandemic of A/New Jersey/76 influenza did not materialize during the past influenza season. This is evidenced by the types and numbers of isolations from specimens submitted to laboratories throughout the country from July 3, 1976 to March 30, 1977. Of 37,131 specimens submitted for isolation, 2,373 were found to be positive. There were 250 type A which included 3 A/New Jersey/76 and 2,123 B/Hong Kong isolates.⁸ Type B influenza reached epidemic proportions in the eastern half of the United States beginning in January. In the western half of the nation, it was spotty in occurrence.⁷ The occurrence of influenza in Arkansas was compatible with the national experience. Excessive outbreaks of influenza-like illness occurred in 41 of the 75 counties. The virology laboratory at the UAMS received specimens on 172 cases from 32 counties; of this number 73 were positive by either viral isolation or 4-fold rise in paired sera. All were type B influenza with the exception of one paired sera which was positive for type A.

Summary

In Arkansas, 9.2 percent of the population was immunized against influenza during the 1976-77 season, as part of the National Influenza Immunization Program. A total of six cases of GBS were documented and four out of the six had received influenza immunizations. None of the cases died.

Beginning the last of January and terminating the first of March, the state experienced a widespread epidemic of B influenza. Forty-one counties reported excess school absenteeism. Throat washings and paired sera were obtained from 32 counties. There were 73/172 cases that were positive for influenza. All of the positive specimens were influenza B with the exception of one paired sera which was positive for influenza A.

Reye Syndrome was documented in six pa-

tients. There were three deaths. Laboratory studies documented an antecedent illness with influenza type B in two of the cases, one of which survived.

Acknowledgements

The authors wish to express their appreciation for the support and cooperation of the physicians throughout the state who notified the Department of Health of increases in influenza-like illness and submitted appropriate specimens that made it possible to document the occurrence and distribution of the disease.

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Phosgene Medical Information

Phillip L. Peters*

PREFACE: The following information is provided for those who are interested in the toxic effects of Phosgene. The Arkansas Department of Health and the Poison Control System have received numerous calls on Phosgene from physicians. The concern surfaced following pre-notification of a large quantity being transported through Arkansas until August of 1978.

GENERAL: Phosgene is a chemical agent which attacks lung tissue primarily, causing pulmonary edema. It is called a "choking agent" because irritation of the bronchi, trachea, larynx, pharynx, and nose will occur and, with pulmonary edema, contribute to the sensation of choking. *There may be no immediate warning that dangerous concentrations of the gas are being breathed, and there is no respiratory reflex to prevent deep inspiration of this gas.*

TABLE I.

Physiological Response to Phosgene Gas

Response	Concentration (ppm)
Maximum amount for prolonged exposure	0.1
Dangerous to life, for prolonged exposure	2.5
Cough or other subjective symptoms within 1 min.	5
Irritation of eyes and respiratory tract in less than 1 min.	10
Severe lung injury within 1 to 2 min.	20
Dangerous to life for as little as 30 min.	25
Rapidly fatal (30 min. or less)	90

PROPERTIES: At ordinary temperatures and atmospheric pressure, phosgene is a colorless gas. It has an odor resembling that of new-mown hay or grass, or green corn. (It has also been described as having an odor of decaying fruit.) One-half part per million (ppm) by volume of phosgene can be recognized in air, through the sense of smell, by normal persons acquainted with its odor, and 1 ppm is easily noticeable. At 2 ppm the odor is moderately strong and the irritant action on eyes, nose, and throat is barely detectable. Phosgene is readily condensed by pressure

or lower temperature to a liquid, which boils at 46 degrees F. (8 degrees C.). Phosgene reacts rapidly with water to yield hydrogen chloride and carbon dioxide products. Its concentration in air is reduced by water condensates (rain, fog) and by dense vegetation. Hence, it has been known as a non-persistent chemical.

TOXICOLOGY: The toxicity of phosgene is probably due to the development of edema as a result of the formation of acylation products in the cells. In this process, important proteins and lipoids are denatured and no longer function. The effect is similar to that produced by other acylation reagents, such as ketene or diazomethane, which also cause lung edema after an interval without symptoms. On the other hand, high concentrations of phosgene cause immediate acid damage to the lung and rapidly cause death by suffocation and termination of circulation through the lungs.

TABLE II.

Toxicities

Inhalation — Human:	
Lethal Concentration	
(LC50)	3,200 mg/m ³
Toxic Concentration—	
Low	25 ppm/30 min.
Inhalation — Rat:	
Lethal Concentration—	
Low	50 ppm/30 min.
Inhalation — Mouse:	
Lethal Concentration	
(LC50)	110 ppm/30 min.
Inhalation — Dog:	
Lethal Concentration—	
Low	79 ppm/30 min.
Threshold Limit Value	
(TLV)	0.1 ppm; 0.4 mg/m ³

PATHOLOGY: Aside from mild conjunctival irritation, the direct effects of exposures to phosgene are confined to the lungs. Changes in other organs (e.g., heart) are secondary to the pulmonary alterations. The outstanding pathologic feature in the early stage is *massive pulmonary edema*, resulting from the passage of fluid into the alveoli from capillaries whose permeability has been affected by action of the chemical. It is

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preceded by damage of the bronchiolar epithelium, development of patchy areas of emphysema and partial atelectasis, and edema of the perivascular connective tissue. The epithelium of the trachea and larger bronchi is not significantly damaged. The lungs are large, edematous, and darkly congested. Edema fluid, usually frothy, pours from the bronchi and exudes from the sectioned lung tissue. Hemoconcentration results from the loss of plasma into the alveoli (as much as 30 to 50 percent of the total blood plasma accumulates in the lungs, causing "dry-land drowning"). This results in slow circulation, oxygen exchange is slowed, and the overworked heart, with insufficient oxygen, weakens. The edema usually reaches a maximum 12 to 14 hours after exposure and results in interference with the interchange of oxygen and waste products between the alveolar air and the capillary blood — so that in most instances of lethal exposure, death occurs within the first 24 to 48 hours from the resulting anoxemia. With very high exposures, death may ensue in 5 hours or less.

In surviving individuals, the edema begins to resorb after about 48 hours and, in the absence of complicating infection, recovery may take place with practically complete resolution of the lesion. Should this process be complicated by secondary bacterial infection of the lungs, the clinical signs of a purulent bronchitis and bronchopneumonia become apparent in about 3 to 5 days. In some cases there may be focal intra-bronchial and peribronchial fibrosis as a result of the initial damage to the bronchiolar walls. In recovered individuals, the percentage of cases showing a significant residual lesion is small.

SYMPTOM: During and immediately after exposure there is likely to be coughing, with the possibility of viscous sputum which changes to foamy consistency; choking; a feeling of tightness in the chest; nausea and occasional vomiting; headache; lacrimation, with conjunctival and corneal opacity; chills; and thirst. The presence or absence of these symptoms is of little value in immediate prognosis because some patients with severe cough fail to develop serious lung injury, while others, with no signs of early respiratory tract irritation, go on to fatal pulmonary edema. There may be an initial slowing of the pulse followed by an increase in rate. A period follows during which abnormal chest signs are absent

and the patient may be symptom-free. This interval commonly lasts from 2 to 24 hours, but occasionally is shorter. It is terminated by the signs and symptoms of pulmonary edema. These begin with rapid shallow breathing, painful cough, and cyanosis. Nausea and vomiting may appear. As the edema progresses, discomfort, apprehension, and dyspnea increase and much frothy sputum is raised. Rales and rhonchi are audible over the chest and breath sounds are diminished. The patient may develop a shock-like state — with leaden, clammy skin; low blood pressure; and feeble, rapid heart action.

PROGNOSIS: Prognosis during the acute phase should be guarded because of the insidious nature of the poisoning. Most deaths occur within the first 48 hours. The few which occur later are due largely to bronchopneumonia. Individuals who survive more than 48 hours usually recover without sequelae. Those sequelae which do occur include pulmonary scarring, lobular emphysema, small irregular areas of atelectasis and bronchitis, and degenerative changes of the nerves.

DIAGNOSIS: Irritation of the nose and throat by phosgene may be mistaken for upper respiratory tract infection. Difficulty in breathing and complaint of tightness of the chest may suggest an acute asthmatic attack. The pulmonary edema is like that produced by other chemicals and may be confused with edema associated with heart failure. *Diagnosis can be established with certainty only from a definite history of exposure to phosgene.*

TREATMENT: Since obvious symptoms do not appear after exposure, anyone inhaling the gas should be treated as though suffering from intoxication. He should remain at rest in clean air and should be covered to prevent heat loss. Even minor physical efforts, especially walking and unnecessary talking, are to be avoided. *Contaminated clothing should be removed.*

Oxygen Therapy: Hypoxemia can be confirmed only by arterial blood gas analysis, but restlessness, cough, dyspnea, and cyanosis are manifestations of hypoxemia. Administration of 40-percent oxygen is recommended unless serial blood gases are deteriorating. 100-percent oxygen should not be administered unless absolutely necessary.

Intravenous Administration: Intravenous fluids should be administered with great caution.

Sedation: Sedation should be used sparingly. Codeine in doses of 32 to 64 mg. (grains 1/2 to 1) is effective against cough. Restlessness may be a manifestation of hypoxemia; therefore, the judicious use of sedatives is advised. The use of sedatives should be withheld until all measures to improve oxygenation have been explored. Intermittent positive pressure ventilation may be of benefit in severe respiratory injury.

Antibacterial Therapy: Specific antibacterial therapy may be administered for the prevention of pulmonary infection as soon as the edema begins to subside and there is improvement in the patient's general condition. The use of antibiotic agents should be left to the judgment of the attending physician.

Other measures: Expectorants should *not* be used in the treatment of phosgene poisoning. Atropine does not diminish edema or improve breathing; its acceleratory action on the heart is undesirable. The administration of parenteral

fluids such as saline, plasma, or blood may be necessary if associated trauma is present. Steroids have been used in treating cases of phosgene poisoning.

CONVALESCENT CARE: Absolute rest must be continued until the acute symptoms have disappeared. Individuals recovering from the acute effects of phosgene poisoning should be gotten out of bed as early as practicable; hospitalized as short a time as possible; encouraged and trained, if necessary, to resume physical exertion in order to minimize neurasthenic symptoms which have been the most disabling features in these patients.

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Office Orthopaedics

A Simple Means of Determining Lower Extremity Torsion

R. Barry Sorrells, M.D.*

We are all familiar with "pigeon-toe" and "slew-foot" as commonly observed orthopedic deformities. While these names imply a primary foot problem, most commonly the defect is a tibial (and fibular) or femoral torsional (twisted) malposition. The result is a turned-in ("pigeon-toe") or turned-out ("slew-foot") posture of the foot. Of 791 consecutive pediatric lower extremity malalignment diagnoses from this clinic, tibial torsion accounted for 240 and femoral torsion 15 cases, or 32% of the common lower extremity diagnoses in children. These diagnoses included genu valgus (17) and varus (40), pes planus (63), talipes equinovarus (132), calcaneovalgus (26), metatarsus varus (139), and miscellaneous congenital foot anomalies (110). While many of these children exhibited more than one lower extremity abnormality, at least one-third exhibited lower extremity torsion. It is obvious, therefore, that torsional deformity is a common pediatric orthopedic problem.

Clinical evaluation and accurate anatomic delineation of the exact site of the torsional defect may, however, be difficult for the medical examiner. The hip with its ball and socket joint permits a wide range of motion and allows for a great degree of compensation in lower extremity rotational alignment. The knee and ankle, however, act primarily as hinge joints and must move in approximately the same plane of motion for normal function and appearance. All three

of these joints must, therefore, be evaluated to determine the exact site(s) of the defect(s).

Torsion is defined as the twisting of a bone on its longitudinal axis. In tibial torsion the distal segment of the tibia may be rotated toward the medial malleolus (internal tibial torsion) with resultant "pigeon-toe" or may rotate toward the lateral malleolus (external tibial torsion) with "slew-foot" as a result. When the tibia is excessively twisted, the ankle and knee joints no longer remain in the same sagittal plane of motion. Herein lies the potential for subsequent premature degeneration.

In femoral torsion, the lower femur is rotated internally or externally with respect to the proximal end. Anteversion (abnormal pointing anteriorly) of the femoral neck results in in-turning of the lower extremity, while retroversion of the femoral neck (abnormal pointing posteriorly) has the opposite effect; that is, out-turning of the lower extremity. The lower extremity will turn in or out, but the knee and ankle joints usually remain in the same plane with respect to each other.

Normal lower extremity alignment is accepted as a femoral neck anteversion of about 25 degrees, with 45 degrees of internal and external rotation at the hip level. The knee joint and ankle joint should move in parallel transverse axes. These joints and long bones must be examined individually and collectively to determine the site of the torsional deformity.

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ETIOLOGY OF LOWER EXTREMITY TORSIONAL DEFORMITY

The etiology of torsional deformities of the lower limb may be positional, congenital, or acquired.

Position

A newborn child maintains the fetal position of the lower extremities for a variable length of time into the post-natal period. That is, internal rotation of the entire lower limb is evident. Derotation normally occurs by the time the child is of walking age but may be delayed until the age of two or three years. Normal alignment should be established, as described above, by the age of three years.

Heredity

A definite pattern of a Mendelian autosomal dominant type of inheritance with internal tibial torsion in four generations has been well documented.¹ Many of us have seen families of at least two generations and numerous children within the family exhibiting variable degrees and types of torsional deformity of the lower extremities.

Acquisition

In acquired torsion, the limbs are rotationally normal in the post natal period, but a deformity is produced by the position in which the child sleeps and sits.² The baby with acquired internal lower extremity torsion usually exhibits a metatarsus varus foot and apparent "bow-leg" deformity. He sleeps prone, in a knee-chest position with the foot turned inward. As a result of this position, the forefoot is twisted inward (metatarsus varus), the ankle turned medially, and the knee and hip internally rotated. The feet may be drawn up under the buttocks, accentuating the deformity. The child who persistently sleeps in this position may be a "footsitter" later; that is, an habitual sitting position with the feet under the buttocks with inward rotation at hips, knees, ankles and tarsometatarsal joints.

External torsion is the mechanical reverse of internal torsion. In addition to the lateral rotation of the lower extremities, there is usually knock-knee and flatfoot deformity. These babies sleep on either the abdomen or the back with the lower extremities in a "frog-leg" position. A few may sleep in the knee-chest position with the feet turned out in a flatfoot position. When old

enough to sit, these children usually sit with their legs crossed in front of them in "tailor" or "jacks-playing" position.

DIAGNOSIS

All too often, diagnosis of a significant torsional lower extremity problem is delayed until a child starts to walk. The mother and doctor may then simultaneously be alarmed by a pigeon-toed child who is clumsy, trips over his own toes, and stands bow-legged with an in-turned forefoot. Not only is his appearance unsightly, but his locomotion is impeded. The opposite deformity — with out-turned flat feet and knock-knees — may be belatedly observed. Indeed, treatment may not be different in the infant with perceptible torsional deformity and in the walking child. It is, however, advantageous to at least appreciate the deformity and advise the parents at as early an age as possible. Therefore, observation and/or treatment may be carried out as appropriate.

Most physicians who conduct examinations of newborn and infant children are well aware of the "hip signs" of subluxation and dislocation. The child is carefully examined at hip level, but all too often the remainder of the lower extremity exam is ignored if the appearance is grossly normal and no club foot deformity exists. Only when ambulation commences is the deformity noticed.

Perhaps the reason for overlooking torsional deformity in a child is the lack of a simple diagnostic method such as those described for hip dislocation. Many of the methods described have resulted in confusion because of the special apparatus and x-ray techniques required to measure torsional deformity.^{3,4,5} A simple clinical method is necessary for consistent proper evaluations.

Method

The ambulatory child is first examined as he walks down 20 to 30 feet of the hallway. He is examined from the back and from the front with particular attention to the hip, knee, and ankle levels. The position of the feet, whether in-turned, or out-turned, is observed. From the front, the position of the knee is carefully noted. If, as the patient walks toward the examiner, his kneecap and knee point directly ahead while the ankle and foot point either in or out, the site of deformity is suspected as tibial. If he walks with the entire lower extremity turned in

or out and with the knee and patella pointing in the same general direction of the ankle and foot, one suspects a femoral level of involvement. As he walks, one obviously looks for other problems, such as flatfoot, metatarsus varus, club foot, knock-knee, or bow-legs.

Next the child is placed on the examining table. The author prefers that the child be seated on the side of the table (supported by the mother, if necessary) with the legs dangling over the edge. The examiner sits on a low stool with the patient's knees just below eye level. The edge of the table becomes a plane of reference. The thighs are brought together, the knees are flexed at a right angle over the table edge, and the femur is rotated inwards (Figure 1) and outwards (Figure 2). The flexed hip usually allows about 45 degrees of internal and external rotation. Occasionally, a child will easily rotate beyond 45 degrees internally and the foot may rest beside the buttocks on the examining table (Figure 3). This represents abnormal internal femoral torsion and/or anteversion of the femoral neck. This child may have a limitation of external rotation, usually to about 20 degrees or less. Less commonly, the opposite may be true with the legs easily assuming the frog-leg position as a result of abnormal external femoral torsion or retroversion of the femoral neck.

Next the knee is extended and flexed as the child continues to sit on the side of the table. Careful attention is paid to the patella



Figure 1.



Figure 2.

and the plane of knee joint motion. The patella should point forward, and the plane of motion of the knee should be parallel to the table edge. The foot is then held in a neutral (neither inverted nor everted) position, the ankle at 90 degrees. The position of the foot is then observed and normally should point directly ahead or in slight lateral deviation (Figure 4). That is, the ankle joint should be parallel to the transverse axis of the knee joint, and the foot should be perpendicular to the table edge. The child with internal tibial torsion will exhibit in-turning of the foot and ankle as the knees point directly ahead (Figure 5). The opposite will be true in

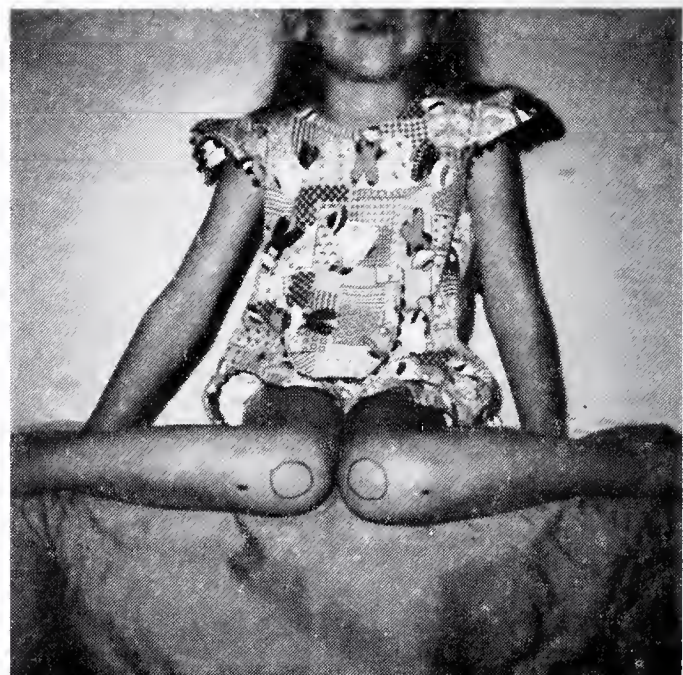


Figure 3.

a child with external tibial torsion. A further refinement is to note the position of the medial and lateral malleoli. Normally, the medial malleolar prominence is approximately 20 degrees anterior to the lateral malleolar prominence. The child with internal tibial torsion will exhibit malleoli in the same plane (the plane of the table top) or perhaps the lateral malleolus will actually be anterior if the torsional deformity exceeds 20 degrees (Figure 5). At this point, the foot is examined for the presence of a primary foot problem.

If the above examination indicates abnormality, additional examination may be carried out in the supine and prone positions and special x-rays may be desirable. The simple examination as described, however, will suffice in the majority of cases to determine whether torsional deformity does or does not exist.

TREATMENT

The type of treatment required for correction of the deformity depends upon the severity of the deformity and the age of the patient. In the young child, passive stretching exercises may be performed to elongate any associated soft tissue contractures that are affecting the hip in motion. The child's sitting and sleeping habits are changed to eliminate the aggravating forces previously described. If the child is an habitual "stomach sleeper," he may be encouraged to sleep on the back. If the deformity is minor and the

child is young, simple observation may be all that is indicated, as there is a strong tendency toward spontaneous correction.

If the child is not correcting spontaneously and the deformity is severe, more aggressive treatment is indicated. If the level of involvement is in the femur, either femoral torsion or neck version, treatment in an above-knee bivalved hip spica with the hips in rotation opposite to the deformity flexion, and abduction may be necessary. Special long leg bracing incorporating the pelvis may be required. In older children with severe femoral rotation malalignment, derotational osteotomy may rarely be necessary.

More commonly the site of torsion is in the tibia. Again, there is a definite tendency toward spontaneous resolution. If more aggressive treatment is indicated, the Denis-Browne or Fillhauer splint is useful. These are simple static splints, a bar between the shoes which allows rotational adjustment of the shoe and consequently variable twisting stress to the legs directed opposite to the deformity (Figure 6). The length of the bar should be only about two inches wider than the width of the pelvis to prevent stresses which might lead to knock-knee deformity. This brace may be worn at night only, or in the pre-walker child, may be worn the majority of the time. Correction comes about through growth of the long bones as, like a young tree, they will grow in the direction of the forces applied. In the



Figure 4.

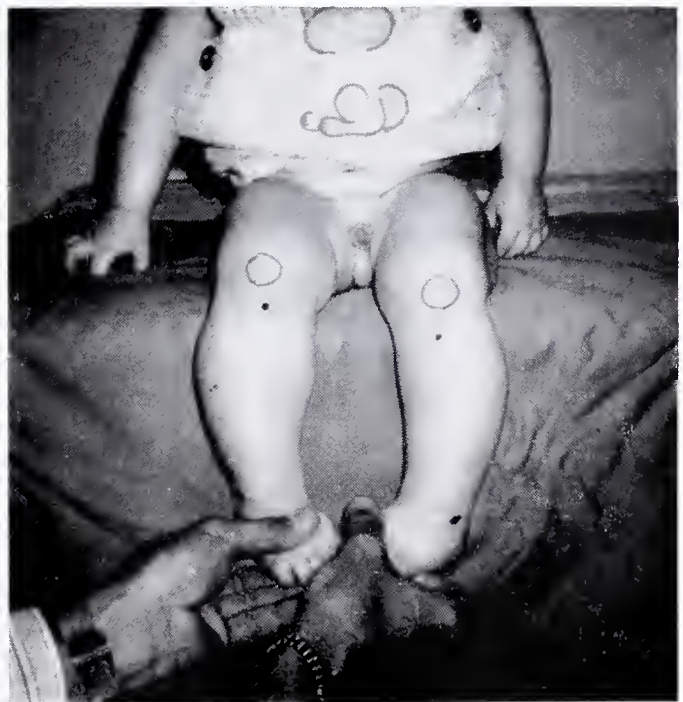


Figure 5.

walking child, the use of sole wedges of the shoes will offer further correction. An outer sole wedge for internal tibial torsion and an inner sole wedge for external tibial torsion are indicated. The very young child will respond to 1/8" wedge.



Figure 6.



Figure 7.

while the older child will require 3/16" or 1/4" wedge. The Torq-Heel® is a dynamic device which can be placed on the heel of the older child's shoe and will result in about 15 degrees rotation at the heel-strike phase of gait. This may be used in conjunction with sole wedging. The older child with significant untreated, resistant, or recurrent deformity may require bracing such as the Alemite® twister brace (Figure 7), which allows flexion at hip, knee and ankle level but significantly limits rotation. This brace, while unsightly, is quite effective. Osteotomy is occasionally indicated in the older child with severe deformity.

CONCLUSION

It is the opinion of this author that torsional deformity of the lower extremity is commonly observed in children. There is a strong tendency toward spontaneous correction. The exact site of torsional pathology must be identified, and a simple method of examination is described. The child with a family history of torsional deformity and with no tendency toward spontaneous correction can be easily treated but should be carefully observed to prevent over-correction or production of other deformities as a result of the treatment. Diagnosis and treatment are a part of Office Orthopedics and in most cases can be easily managed by the pediatrician or family practitioner.

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ELECTROCARDIOGRAM



OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 213)

76 YR OLD BLK FEMALE

JULY 1, 1977

SEVERE RIGHT HEART FAILURE

CCU RHYTHM STRIP



The management of this patient might include which of the following?

1. Lidocaine
2. Quinidine
3. Temporary pacemaker
4. Dilantin

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Protective Athletic Equipment

John Park, M.D.* and James A. Arnold, M.D.**

The use of protective equipment for modern team sports began in the mid-19th century when baseball players started wearing a light leather glove. Padded trousers, shoulder pads, and the helmet evolved eventually in football, ice hockey, and other sports. Individual sports had developed protective equipment even earlier, such as leather thongs binding the hands of ancient Greek boxers. Each item of equipment has had a similar introduction. For a specific injury known to an athlete, coach, or interested lay person, the inventor has devised protective equipment whose use would hopefully prevent future injuries of the same sort. If it was successful, the equipment often became standard or even mandatory for a particular sport.

Since football has received the most nationwide publicity regarding all types of injuries, this discussion will be limited to the protective and preventive role of present-day equipment used in the sport.

No team sport in the world has an incidence of injury higher than American football. It is estimated that the average high school boy participating a full season of play has a 20 percent chance of injury and an 8 percent chance of

serious injury. AFCA data on deaths in all phases of football between 1931 and 1965 revealed 609 injury-related player deaths and 302 indirectly related deaths (heart attacks, heat stroke, etc.). In recent years, 90 percent of deaths have been caused by head and neck injuries. Alley's study of 19,413 high school players in 1961 showed an overall incidence of injury of 25 percent, with 7 percent head and/or neck injury.

In football, the head may have to be protected against low, intermediate, and high velocity impact blows. The modification of the helmet from a leather cap to the more modern variety demonstrates vividly the evolution of this item as protective equipment. Protection from skull fractures requires a hard shell, which will not be deformed excessively on impact while distributing the load over a large area with energy-absorbing material. Gurdjian has shown that the human head should be able to withstand an effective acceleration of 42 G's for 20 milliseconds without injury. If deformation of the skull is prevented by use of a helmet, an effective acceleration of 80 G's for up to 20 milliseconds will probably not result in permanent injury.

In the 1930's, leather helmets were introduced with internal suspension. The rigid plastic

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helmet with a webbed suspension system appeared around 1950. In the 1970's, helmets with rigid outer shells with sophisticated pneumatic and hydraulic systems have appeared. Proper fit must include considerations of head shape, hair style, and proper application. The chin strap should be snug to prevent forward rotation. When pressure is applied to the helmet, pressure should be felt circumferentially, not just on the crown. The jaw pads should be of adequate length to prevent lateral rocking. Four snap chin straps can more effectively prevent forward/backward rocking.

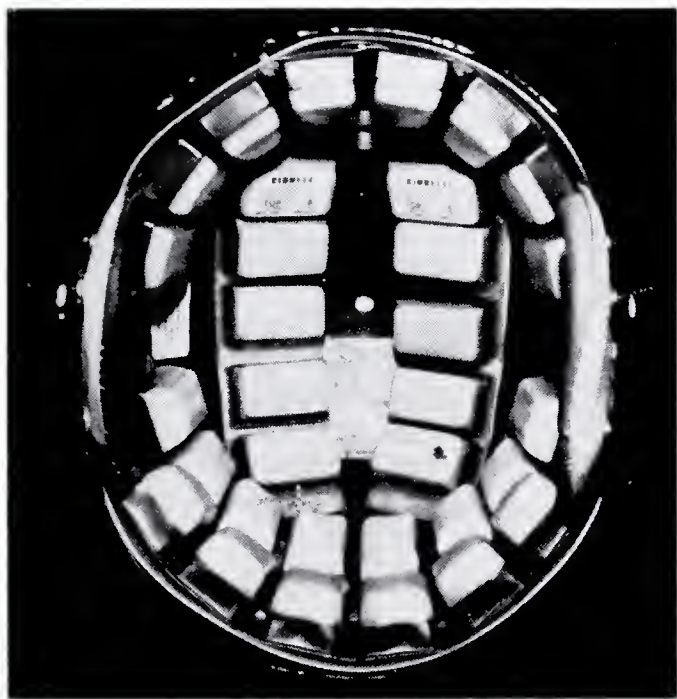


Figure 1.
Modern Air Suspension Helmet.

Despite logical modification in helmet design, some studies have shown no correlation between fit, condition, or age of the helmet, and incidence of head or neck injuries to the player. Schneider has shown in his survey of American and Canadian neurosurgeons that of 225 players with head and neck injuries, 66 had fatal injuries and 159 had some persistent neurologic deficit. Of note, 88 percent of these players were considered to be well-protected with head gear and shoulder pads. Combs and Wilms have demonstrated abnormalities in the EEG findings from Purdue University football players after four seasons of play, presumably related to trauma, while wearing well-fitted modern helmets.

It was previously pointed out that cervical injuries constitute a major hazard. Various equipment designs, including neck collars and extensions of energy-absorbant material onto the

helmet, are felt to reduce the hypertension variety of neck injury. Lateral forces can be better absorbed with properly fitted shoulder pads, where the neck edges fit close to the neck. Bergfeld and Andriels devised a semi-elastic strap from the back of the helmet to the shoulder pads to decelerate and limit the extremes of cervical flexion, and suggest its merit in the prevention of these potentially severe injuries.

Face guards, mandatory since 1960, provide primary protection from direct blows to the mouth, nose, and facial structures. It does not protect the mouth from blows under the chin. Initially they were shown to reduce mouth injuries by 50 percent. In 1962, it became mandatory to wear mouth protectors, and the remaining 50 percent of mouth injuries were essentially eliminated. Considering previous injury figures, this probably means that at least 100,000 oral injuries per year are prevented for the more than one million players in the NCAA and NFA. Custom fitted intra-oral guards are known to be the best resulting in essentially no impedence to air flow while giving oral protection.

Shoulder pads provide protection to the neck, shoulder, and upper trunk. Their design incorporates an arch, the epaulet, which transmits forces applied to it over the upper trunk. Variations in size, degree of padding, and construction exist. The quarterback pads, designed for mobility and increased freedom of the upper extremities, offer significantly less protection when compared to the bulkier lineman pads.

Hip, thigh, and knee pads provide similar protection to bony prominences and muscular areas which are easily subject to repeated trauma. Equally important are football pants, which hold the pads in position. However, since many pants incorporate Spandex material with rubber fibers subject to fatigue, the elasticity can be lost allowing slippage of protective pads away from their proper location.

The proper construction of footwear seems to remain an enigma in football today. Metal cleated shoes have been used for many years on grass fields where traction depended upon firm foot fixation. With the introduction of Astro-turf, changes in shoes have occurred. With the 1/3 inch cleat length rule in effect, most shoes for artificial turf consist of molded plastic soles with variable numbers and distribution of cleats

for wet or dry conditions. The old metal foot-plate has not been incorporated into the newer shoes. The hypertension injury involving the metatarsophalangeal joint, known as Astrotite, has thus come into existence. With the increased emphasis on speed and traction, players and coaches are more interested in a light-weight, poor support shoe, and subsequently these characteristics appear to enhance the likelihood of lower extremity injuries, especially ligamentous injuries of the knee. The width of the last varies with the size of the shoe in most cases. Recommendations, including extended counters, ample box, sole length, reinforcement, straight lasts, variable width lasts, and molded heel cups have not been incorporated into most footwear available. Swivel cleats and cleatless heels have merit on theoretical basis, but have not been widely adopted.

Research into improvements in protective equipment is under way at many levels. The National Operating Committee on Standards for Athletic Equipment (NOCSAE), a research organization comprised of representatives from the NCAA, National Athletic Trainers Association, National Federation of State High School Associations, and other groups, was formed to establish safety standards. Thus far NOCSAE has set one standard which prescribes performance specifications for football helmets. By 1978 and 1980, the NCAA and NFHS respectively must buy only NOCSAE certified head gear. Further guide-

lines in other athletic protective equipment are being established by laboratory tests and field trials.

A recent legal judgment against one major helmet manufacturer brought by an injured athlete attests to the necessity of continual improvements. However, many questions remain unanswered. Who should set standards for protective gear? How should they be enforced? Should there be different levels of protective equipment for different levels of play? What role will the government play in future standards of protective equipment?

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A Brief Review and Critique of the National Influenza Immunization Program

Paul C. White, Jr., M.D.*

On March 24, 1976, President Ford announced that the United States would provide influenza vaccine for the entire population, in the fall of 1976. For this project, Congress appropriated 135 million dollars. A public immunization program of such magnitude has never been attempted by any country in the world.

The basis for this decision was the occurrence of an outbreak due to a new influenza virus in February among military personnel at Fort Dix, New Jersey. The virus was isolated from five recruits, one of whom died of acute viral pneumonia. Retrospective serologic studies show that several hundred personnel on the post were infected. This virus represented a major change from the A/Hong Kong (H3N2) influenza viruses prevalent since 1968. The reference strain of the new virus was A/New Jersey/8/76 (Hsw1N1). Thus its antigenic composition was completely different from the current variant of the H3N2 viruses (A/Victoria/75). Therefore, it was felt that with the population having never been exposed to this new strain of A influenza, the potential for a pandemic of influenza was a real possibility.¹

The time schedule for the program called for vaccine preparation testing in over 700 volunteers. The evaluation of the test data was to be completed in late June. While testing proceeded, an overall national strategy of vaccination was developed by federal, state and local officials. Nationally, campaigns were planned to be conducted beginning with bivalent vaccine directed at high-risk groups in July and August.

This was to be followed by monovalent vaccine campaigns directed at the general population in September, October and November. The objective was to complete vaccination before the peak of the influenza transmission season.²

From the beginning, the program was plagued with problems. Initially, there was a two-month delay in vaccine availability related to the vaccine manufacturers being unable to secure liability insurance. This was not resolved until 12 August when Congress passed a law providing widespread coverage for manufacturers and recipients of vaccine. A stipulation of the Act required that all persons receiving vaccine furnished by the national program were required to read and sign a consent form and the states were required to maintain these signed forms for a period of three years. The delay resulted in the program being deferred until 1 October.

Differences in immunological response to the various vaccines resulted in a series of complicated recommendations for vaccine use. Initially, there were no recommendations for the pediatric age group. The recommendations for this age group were not made until the latter part of September. In addition, a specific vaccine, for the 18-24 year age group was not received until the day the program began. A total of four vaccines were produced, whole virus monovalent A/New Jersey/76, split virus monovalent A/New Jersey/76, split virus bivalent A/New Jersey/76—A/Victoria/75, and monovalent B/Hong Kong/72. The latter vaccine was not furnished through the national program. It was produced in a limited quantity and was not made available through the state program. The initial ship-

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ments of vaccine were found to be inadequately labeled to distinguish between the "whole" and "split" virus vaccines, which added further confusion.

The signed consent form and the multiple vaccines with specific requirements for various age groups resulted in a logistic nightmare for public clinics. This was the first mass immunization program in this country where more than one vaccine was used to immunize against a single disease.

On October 7, in Pennsylvania, three nursing home patients age 71 to 75 died of heart attacks within hours after receiving influenza immunizations. No evidence could be found to implicate the vaccine. However, the widespread publicity of the incident resulted in several states temporarily discontinuing their programs as well as creating more degree of apprehension in the general population.

Late in November a number of cases of Guillain-Barre' syndrome were detected. Further investigation revealed a higher rate among vaccinees than among those not vaccinated. On December 16, the vaccination program was suspended and an intensive nationwide investigation was conducted as the relative risk of GBS in vaccinees was found to be 12 times greater than expected. The association of GBS with influenza immunization has resulted in numerous liability claims which are estimated to cost one billion dollars to resolve.

The moratorium of influenza vaccine remained in effect until 9 February 1977. At this time, the secretary of DHEW recommended that the B/Hong Kong and Bivalent A/Victoria — A/New Jersey vaccines be released for use, but not the monovalent A/New Jersey. His decision was based on a recent outbreak of A/Victoria influenza in a Miami, Florida, nursing home which was felt to constitute a risk for widespread infection with this virus.³ This decision only created further confusion and loss of confidence among the general population. The reason being that in recommending A/Victoria vaccine, this vaccine had only been produced as a bivalent vaccine in combination with the A/New Jersey for which the moratorium had not been lifted. This also necessitated the printing of a new consent form which included a warning about GBS.

More than 46 million doses of influenza vaccine were administered. This is more than twice

the amount normally produced each year, 20 million doses. The coverage rates by states ranged from less than ten percent to over 80 percent, with a national average of 32 percent. There were over 100 million doses of influenza vaccine in stock at the end of the influenza season.²

Since 3 July, 1976, over 39 thousand specimens were submitted to laboratories in the United States that participate with the CDC influenza surveillance program. The majority of the isolates were B/Hong Kong (2236) and 447 were influenza A. Three influenza A swine-like (A/New Jersey/76) viruses were isolated from humans in December and January. All subjects had clinical influenza and all were in contact with swine.⁴ Morbidity and mortality from influenza remained below the epidemic threshold throughout the nation.

The recommendation for influenza vaccine for the 1977-78 season is a bivalent vaccine containing A/Victoria/75 and B/Hong Kong/72. The vaccine will be available in "split virus" and whole virus preparations. Split-virus vaccines, which contain antigens produced by chemically disrupting the influenza virus, have been associated with somewhat fewer side effects than whole-virus vaccines appear to be somewhat less effective in eliciting antibodies when given as a single dose to persons who have not been "primed" by exposure to related viruses in nature or through vaccination. General recommendations for the use of vaccine remains unchanged. Included for annual immunizations are the high risk groups and persons over 65 years of age. The split virus vaccine is recommended for persons under 18 years of age and either vaccine can be used for those 18 years and older.⁵

SUMMARY

In March of 1976 the President of the United States announced a National Influenza Immunization Program whose goal was to immunize the entire population prior to the beginning of the influenza season. This decision was based on five isolations of a new strain of influenza virus, A/New Jersey/76 (Hsw 1 N). It was felt that this new strain has the potential for causing a pandemic.

The program was beset with problems from the beginning. It was delayed two months by the inability of manufacturers to secure liability insurance. This resulted in signed consent forms being required for all vaccine recipients. Dif-

ferences in response to the various vaccines resulted in a series of complicated vaccine recommendations.

The program was suspended when an association was made between vaccine recipients and the occurrence of a number of cases of the Guillain-Barre' syndrome. Later A/Victoria vaccine was recommended for use but in order to obtain it only bivalent vaccine was available which contained the A/New Jersey. The latter vaccine had not been released for use.

Influenza A activity throughout the nation remained at a low level. Only three additional cases of swine influenza were reported. All of these cases were associated with swine contact.

The resulting confusion and distrust for the program resulted in those public officials who were responsible for the program being relieved from their jobs and an adverse effect on the public's acceptance of immunizations.

Vaccine recommendations for 1977 are included.

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EDITORIAL

Hypertension

Alfred Kahn, Jr., M.D.

Hypertensive disease is a killer disease, and despite much research there are vast areas of hypertensive disease which are still unexplored — diagnostically and therapeutically. Hypertension has been classically divided into primary and secondary — but the boundaries between the two are becoming a bit obscure. Essential hypertension was the disease left when all causes of secondary hypertension were ruled out — they usually include brain tumor, pituitary disease, thyroid disease, coarctation of the aorta, adrenal disease and renal disease. Since secondary hypertension is often remediable, it is important to discover these cases although they represent a

much smaller group than essential or primary hypertension.

Grim, Weinberger, Higgins and Kramer have published a comprehensive protocol to be used in the diagnosis of secondary hypertension (JAMA, Volume 237, Page 1331, March 28, 1977). They have made a very good "flow" sheet showing their technique of handling the patient. The authors stress that estrogens must be stopped — and so must drugs as spironolactone. One of the first tests is an intravenous pyelogram for gross renal defects; in this regard infusion tomographic technique is often reliable. Patients were then submitted to renal arteriography to identify dis-

case of the renal arteries. If the renal arteriograms were not normal, the patient was scheduled for a later renal vein catheterization study to collect blood renin samples from both renal veins — ordinarily this was done three days later than the renal arteriography. On the two days between the arterial and venous studies, the patient was submitted to some biochemical reviews; on the first of these days, the patient received a saline infusion after blood samples were taken in the upright position — for renin and aldosterone samples were taken after two liters of normal saline. A 24-hour urine catch was also made for creatinine and catecholamines. The primary purpose of this test was to determine if the renin-angiotensin-aldosterone system could be suppressed — searching for primary aldosteronism. The second day of biochemical tests consisted of using furosenide to trigger the release of renin by volume and sodium repletion. Blood samples were taken before depletion for renin and the next day blood samples for electrolytes and creatinine level were obtained. The reader is referred to the article for the precise technique used by the authors.

The best interpretation of the Weinberger, et al., article pertaining renin, etc., is Edgar Haber's lecture entitled "The Role of Renin in Normal and Pathological Cardiovascular Homeostasis" published in *Circulation* (Volume 54, Page 849, December, 1976). As he points out, ablation studies on the so-called renin angiotensin system cannot be performed, but with inhibitors the same effect can be obtained. Renin is made and held ready for use in cells belonging to the juxtaglomerular apparatus. Haber calls this "the center of a feedback loop which serves to regulate blood pressure and probably intravascular volume by modulating the rate of renin secretion." The release of renin seems to relate to sodium concentration in the distal tubule, afferent arteriole blood pressure, plasma antiotensin level and impulses from the sympathetic nervous system. Continuing, Haber explains that renin causes the formation of Angiotensin II which is a vasoconstrictor stimulator of the central nervous system's vasoconstructive actions, and stimulator of the adrenal gland — to release aldosterone. Aldosterone causes sodium retention and thus enlarges vascular volume and increases blood pressure. The baroreceptors in the kidney are stimulated by the results of the aldosterone secre-

tion and the production of renin decreases. Renin has no direct action on the feedback loop; instead it acts on angiotensinogen — formulating Angiotensin I and later II is formed. Inhibitors of renin have been found enabling precise studies to be made. Using newer techniques two feedback loops have been demonstrated: renin secretion is controlled by blood pressure and by Angiotensin II. These results apply to experimental animals and to man. Furthermore, Angiotensin II seems to be essential to renovascular hypertension, according to Haber.

There is an excellent symposium on hypertension in the May, 1977, issue of *The Mayo Clinic Proceedings*. Of particular interest is the keynote address by Genest, Nowaczynski, Kuchel, Boucher, and Rojo-Ortega, entitled, "The Role of the Adrenal Cortex in Human Essential Hypertension" (P. 291). Their discussion points out that hypertension can be caused by excessive salt intake in predisposed people, loss of vascular wall elasticity, Angiotensin II excess, loss of kidney tissue, increased cardiac output, aldosterone excess, polycythemia, increased blood viscosity, adrenalin, thyroxine, and licorice. Despite this knowledge, the cause of primary hypertension is not known. Genest, et al., postulate that essential hypertension is due to several factors which interplay, among them being cardiac output and volume factors interplaying with increased peripheral resistance due to the adrenal cortex Angiotensin II, tissue isorenins, sympathetic activity, and catecholamines. Extending this theory, they feel that human essential hypertension is the result of a state of too much "tone" in the arterioles due to "a disruption of the equilibrium between the sympathetic nervous system activity and the cationic content of the arteriolar smooth muscles." Calcium migration may play a key role in this state of heightened tone of the arterioles. From this last hypothesis of a disrupted equilibrium, the authors have evolved two modes of hypertension. Model one is characterized by increased sympathetic activity as in pheochromocytoma, neurologic diseases, and tension. Model two is characterized by normal sympathetic activity but in which the carion changes in smooth muscle of the arterioles cause excessive response to the catecholamines; this could be due to excessive salt intake or disturbance of the mineral-corticoid activity; a variation known as Model 2 Type B is thought to

be due to excessive Angiotensin II. Genest points out that the treatment of hypertension is (1) to decrease sympathetic activity at any level so that non epinephrine cannot be released at the neuromuscular junctions in the arterioles, and (2) to antagonize mineralocorticoid activity or deplete the level of body sodium. Genest, et al., interpret their studies to indicate that in mild hypertension aldosterone metabolism is disturbed and there are increased concentrations in the plasma of 18 hydroxy-II-deoxycorticosterone; this is especially true with high sodium chloride intake. The authors also take issue with the idea that a single plasma renin activity sample can be used as a measuring stick for hypertensive patients so that they can be classified into various renin subgroups as high, normal, low. It is of incidental interest that renin is lower in older groups and in blacks.

There are other significant papers in this symposium. Bravo, Khosla and Bumpers have studied a fragment of Angiotensin II that has similar effects to Angiotensin II; it can be gen-

erated in plasma or tissues. It is a heptapeptide containing a coohterminal. Williams, Dluhy and Moore report that "the hypertensive patients as a group had a significantly greater plasma aldosterone increment to infused Angiotensin II than did salt loaded normotensive control subjects: they also state that in so called normal renin hypertension, some patients may have increased or reduced adrenal responsiveness to angiotensin II depending on the amount of salt ingested. Melby and Dale report that 18 Hydroxy-II-droxycorticosterone is a precursor to 16a, 18 hydroxy-11-Deoxycorticosterone; the latter is thought to suppress renin in some patients. Lastly, Hollifield, Slaton, Wilson, Bennett, Yarbrow, Island and Liddle suggest in their review that an unknown mineralo corticoid substance may play an important role in low renin hypertension.

There are no firm answers to the questions posed by hypertensive disease but there are a number of lines of investigation which eventually may offer some solutions.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Strong pressure from President Carter and other Administration officials and a desire by Congress to get some handle on rising health care costs appear to be weakening Congress' previously firm sentiment against the Administration's Hospital Cost Containment program. Some Hill observers now believe the plan — in some form or other — is picking up enough momentum to clear Congress this year, a possibility viewed as remote earlier in the session.

The Cost Containment plan calls for imposition of an annual ceiling of about nine percent on all hospital revenue increases. It places a \$2.5 billion limit on capital expenditures. Major health provider groups, including the American Hospital Association and the American Medical

Association, have assailed the plan as a revival of the discredited wage and price freeze several years ago.

Other versions of the Administration's plan, however, are taking shape in the Congress. Here are some recent developments:

★ Rep. Paul Rogers (D.-Fla.), Chairman of the House Commerce Subcommittee on Health, has introduced a modified version of the Administration bill and held one day of public hearings.

★ The House Ways and Means Subcommittee on Health headed by Rep. Dan Rostenkowski (D.-Ill.) has started marking up a measure following introduction of a version by Rostenkowski.

★ Sen. Edward Kennedy (D.-Mass.) called his Senate Human Resources Subcommittee on

Health to put together a bill containing major elements of the Administration plan.

★ Sen. Richard Schweiker (R.-Pa.), ranking Republican on Kennedy's subcommittee, has introduced an alternative plan that would beef up state control of hospital costs and prohibit capital expenditures for 18 months. Schweiker has been joined by Sen. Thomas McIntyre (D.-N.H.).

Public hearings now have been completed on the issue by three of the four Congressional committees with jurisdiction. The exception — the Senate Finance Subcommittee on Health — has conducted public sessions on legislation by Subcommittee Chairman Herman Talmadge (D.-Ga.) that is limited to restrictions on Medicare-Medic-aid spending by hospitals, but could be broadened to include all revenues.

Congress takes a month vacation during August and leaders are pushing for an October recess date. This does not leave much time for the four involved committees to resolve their differences and agree on such a volatile issue as controls on one segment of the economy.

The American Medical Association has testified that the Rogers' bill "unfortunately retains those programs which would in effect allow the (HEW) Secretary to determine revenue increases, capital expenditures, and utilization rates." The arbitrary limitations on revenue increases "would prove to be disastrous for many hospitals, especially to the already more efficient hospitals and those hospitals which are located in rural areas," said Edgar T. Beddingfield, Jr., M.D., Chairman of the AMA Council on Legislation.

The major changes made in the Administration plan by Rogers would extend the government's power to regulate the purchase of new major medical equipment, provide incentives for hospitals to eliminate services, and award hospitals for cutting costs. Dr. Beddingfield lauded the concept of incentives, but questioned the details of the new plan.

The AMA official said that financing incentive payments to hospitals out of general revenues raises constitutional questions. "Should Congress pay out of the general treasury amounts to hospitals for providing services for which the federal government otherwise has no obligation to pay?" he asked, noting that all in-patients, not just federal beneficiaries, would be covered.

Under the measure, expensive equipment purchased for use in a physician's office could be

subject to a certificate of need restriction. Dr. Beddingfield attacked this provision. "Any initial inroads into medical practice seeking to control physician offices or the acquisition of practice equipment would jeopardize the independent practice of professions," he said.

Dr. Beddingfield continued: "Such an action could only lead to more stringent controls eventually controlling practice locations and extent of services available and affecting quality of care. Medical practice — the physician's office in particular — should not be treated as a public utility."

The Carter Administration also opposed the amendments recommended by Rogers. Sticking to their game plan of fighting for its proposal with no changes, HEW officials told the House Commerce Health Subcommittee that the suggested changes "have much long-run potential," but "often raise more questions than they resolve."

Karen Davis, Deputy HEW Assistant Secretary for Planning, said "we simply do not have the time to refine proposals (such as those in the Rogers bill) to ensure that they have the desired effect and preserve administrative simplicity." The Hospital Cost Containment Act as originally proposed should be enacted "as the first and desperately needed step in devising a permanent solution to the critical national problem of controlling rising health costs," she said.

* * * *

A bill before the Congress would mandate that prescription drug packages would carry a warning label stating:

"Warning to physicians and patients — the federal Food, Drug and Cosmetic and Devices Administration approves this drug or device for the following purposes and no other purpose."

Drugs would be accompanied by patient package inserts approved by the FDA explaining in layman's language the uses of the drug, a description of the side effects, and so on.

This provision of a sweeping drug measure proposed by Sen. Edward Kennedy (D.-Mass.) was attacked by the AMA. "By setting out in bold print and by directing the warning to physicians and patients, the statement raises a spectre that a drug as prescribed is dangerous," said Lowell H. Steen, M.D., a member of the AMA's Board of Trustees. "We believe that such a phrase un-

duly intrudes into the practice of medicine in an attempt to limit in some manner the use of a drug," said Dr. Steen.

"To mandate a drug label warning that in any way suggests that a drug can, because of special federal approval, be used properly for only certain conditions and not for any other condition is an improper attempt to restrict the necessary freedom of the physician to prescribe the needed treatment," Dr. Steen said.

Dr. Steen noted that the AMA supports certain additions to the drug labeling requirements and has drafted a bill that would require certain information to be listed on the drug container dispensed to the patient.

But, he told Kennedy's Health Subcommittee, "it is highly inappropriate to include a requirement that the proposed warning be placed on all drug labels. Moreover, we believe that all drugs should not be required to have patient package inserts. The preparation and distribution of the information to be required in the patient package inserts pose a number of problems. Patients differ in their drug requirements with respect to dose, duration of therapy and adjunct medication. They also differ in therapeutic response, adverse side effects and toxic reactions. 'Patient package insert' might be helpful to some patients, but might confuse, frighten or even harm other patients."

The most appropriate source for a patient desiring drug information is the physician. The AMA official testified "we do not believe that it is desirable for the Commissioner of FDA to publish mini-treatises on drug usage for dissemination to patients for all drugs. A professional judgment on what is the best treatment for the patient is the physician's responsibility and is made on the basis of extensive training and experience."

Dr. Steen spoke favorably of a Kennedy provision for an expanded drug-testing program for drugs that have not yet received new-drug application approval. This, he said, "could be highly beneficial in bringing new drugs and chemical entities to the market as expeditiously as possible. There have been indications that our present system of new-drug approval has led to a relative drug lag between the United States and other industrialized countries."

* * * *

Much of the autonomy and power of the ten

HEW regional offices have been eliminated in a major reorganization by HEW Secretary Joseph Califano.

Powers once vested in the Regional Directors were shifted to HEW headquarters in Washington, D. C., bringing to dust the goal of the Nixon Administration to establish "mini-HEW's" with substantial independence to deal with regional problems. However, the ten offices with tens of thousands of employees across the nation will stay in business, but with much closer ties to the Nation's Capital.

Califano designated Eugene Eidenberg as Deputy Under Secretary for Intergovernmental Affairs. "In this role, Mr. Eidenberg will be my principal liaison and point of contact on a daily basis with the PSROs," he said.

"In the past," he said, "there has been confusion about the role of the Regional Offices and often considerable discrepancy between the rhetoric that was used to describe their functions and their actual functions. The Regional Offices, on paper, were mini-HEW's and the Regional Director a field secretary with line direction over program operations in the field."

"Our five-month review of the regional operations has led to the conclusion that this has not, in fact, been the function of the Regional Offices and that it should not be," Califano continued.

Instead, the Secretary said, "the reorganization is intended to provide clear and direct accountability between the program people in the field and their respective headquarters program offices in Washington, without the presence of the Regional Director as 'middleman'."

The reorganization will make the heads of the Department's major program divisions (the assistant secretaries and commissioners) accountable for all aspects of the operations of their program on a nationwide basis.

Califano said that the reorganization would be implemented gradually to avoid disruption of established operations and to minimize any adverse impact on HEW employees.

* * * *

The AMA is supporting a bill to increase Veterans Administration physician and dentist pay.

The legislation before the Senate would extend for one year authorization (Pay Comparability Act of 1975) for the Administrator of the Veterans Administration to provide special pay to eligible physicians and dentists. The bill also

provides that a physician or dentist who has entered into agreement with the Veterans Administration which will be completed during the extended authorization period may enter into a new agreement not to exceed four years in duration.

In a letter to the Senate Committee on Veterans Affairs, James H. Sammons, M.D., AMA Executive Vice President, said:

"The American Medical Association has been supportive for many years of the federal government's efforts to recruit and retain career-minded health professionals for federal health delivery programs."

"We urge that the Congress act favorably on this legislation and to assure the continuation of current authorities to provide more adequate and equitable compensation for physicians and dentists in the Veterans Administration health care system," said Dr. Sammons.

* * * *

In remarks before a recent conference in Washington, D. C., on the subject of controlling health care costs, Lewis Thomas, M.D., President of Sloan-Kettering Cancer Center, shared these following thoughts with those present:

"The roster of major diseases that have become controllable within my lifetime made up the main body of the textbooks of medicine and pediatrics in the 1930's. Most of this transformation occurred in the field of infection, thanks to immunization and the antibiotics, but there have been improvements of comparable magnitude in other fields, notably hematology. And the change is still going on.

"There has never been a time like it, in all the long history of medicine, and the prospects strike me as brighter today than ever before. Of all times these are the unlikeliest for slowing down or stopping science, or for trying to put restraints on technology. We will not be helped by restraining innovation, we will simply stay where we are, unable to change the largely unsatisfactory and costly things we are obliged to do for the diseases whose mechanisms we still fail to understand. And those diseases — heart disease, cancer, stroke and the rest — are not going to go away by themselves, nor are we going to be able to talk them away. The problems are much more complex and profound than most people realize . . . there is within medicine, somewhere beneath the pessimism and discour-

agement resulting from the disarray of the health care system and its stupendous cost, an undercurrent of unqualified optimism about what may lie ahead for the treatment of human disease — if we can only keep learning."

* * * *

AMA ADDS COMPUTER SERVICE

The American Medical Association is offering a new service to its members — individualized consultation for computer systems in their medical practices. The consultants on staff can provide expert guidance for those physicians who are considering incorporation of computer capabilities into their practices or current users wanting to improve or expand their computer applications.

The charge for the service is \$200 per day plus expenses. The actual number of days required per client depends on the size of the organization and the complexity of activities being analyzed. The average required time is two to three days.

For further information, contact Mr. John A. Guerrieri, Jr., Computer Systems in Medicine, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610, or call (312) 751-6417.



THINGS TO COME



ARKANSAS PHYSICIAN-NURSE JOINT PRACTICE COMMITTEE DINNER

The annual convention of the Arkansas State Nurses Association will be held October 27-29 at the Camelot Inn, Little Rock.

The Arkansas Physician-Nurse Joint Practice Committee dinner will be held on Thursday, October 27th. It will feature a physician-nurse practitioner panel presentation. Physicians are invited to attend. There will be a cash bar at 6:00 P.M. and a Dutch treat dinner at 7:00 P.M.

NINTH ANNUAL CANCER FORUM

The Ninth Annual Arkansas-Oklahoma Cancer Forum will be held at the Sheraton Inn in Fort Smith on November 17 and 18. The Forum

has been approved for eleven hours of continuing medical education credit by the American Medical Association and by the American Academy of Family Physicians (prescribed credit).

Distinguished guest speakers from out-of-state will include Frank Rauscher, Ph.D., Senior Vice President for Research of the American Cancer Society; I. Bernard Weinstein, M.D., Professor of Medicine at Columbia University Medical School; Charles Coltman, Jr., M.D., Chairman of the Division of Oncology, Lackland Air Force Base; Ralph Johnson, Chairman of the Radiation Therapy Department of the National Cancer Institute; Alfred S. Ketchum, Chief of Oncology at the University of Miami; Edward M. Copeland, Professor of Surgery at the University of Texas Health Sciences Center; and Sandra Norman, M.D. Anderson Hospital and Tumor Institute.

Further information may be obtained from the Arkansas Division of the Cancer Society, Post Office Box 3822, Little Rock, 72203. Telephone 664-3480.

MEDICINE-RELIGION SYMPOSIUM

A one-day seminar on Recurrent Religious Themes and Their Medical Significance is scheduled for December 3, 1977, at the University of Arkansas for Medical Sciences, Little Rock. Joseph Norton, M.D., of Little Rock and Wayne Oates, Th.D., Professor of Psychiatry and Director of Program in Ethics and Pastoral Counseling, University of Louisville School of Medicine, Louisville, Kentucky, will speak on "Religious Themes of Desperation;" Amail Chudy, M.D., of North Little Rock and Dr. Oates will discuss "Religious Themes of Hope," and Ken Lilly, M.D., of Fort Smith and Dr. Oates will speak on "Marks of a Genuine Religious Faith." Others participating in the program are C. R. Ellis, M.D., of Malvern, Chairman, Society's Committee on Medicine and Religion, James Dennis, M.D., of Little Rock, Fred Henker, M.D., of Little Rock, and the Reverend Rufus Womble, Rector, Christ Episcopal Church, Little Rock.

The course is co-sponsored by the Arkansas Medical Society Committee on Medicine and Religion, and the University of Arkansas College of Medicine's Departments of Continuing Education and Psychiatry.

The symposium is designed for family and general practitioners, obstetricians and gynecol-

ogists, surgeons, and internists. It is open to ministers, nurses, psychologists, and social workers. Registration closes December 1st. Registration fee of \$10 includes lunch.

For reservations and further information, contact Dr. Neil Sims, Director, Continuing Education for Physicians, Slot 525, University of Arkansas College of Medicine, Markham at Hooper, Little Rock, Arkansas 72201. Telephone 661-5261.



WILLIAM J. BUTT, M.D.

Dr. William J. Butt of Fayetteville died August 2, 1977, at the age of sixty-five. A 1939 graduate of the University of Arkansas School of Medicine, Dr. Butt was a retired general practitioner who had served as Director of Student Health at the University of Arkansas in Fayetteville.

Dr. Butt was a member of the Washington County and Arkansas Medical Societies, and the American Medical Association. He was a veteran of World War II and a member of the Methodist Church. He is survived by his widow, Mrs. Frances Blakely Butt and a son, David, of West Fork.



ANSWER — Electrocardiogram of the Month

The rhythm is marked sinus bradycardia with junctional escape rhythm. AV conduction is intact. Note that anti-grade conduction of beat 4 of the second strip and retrograde conduction thru AV node in the rest of the beats are intact, as retrograde P waves are seen in all but beat 4 of strip 1 and beat 4 of strip 2. The correct therapy is pacing.

When the patient was paced, she diuresed and her blood pressure normalized as cardiac output increased. Lidocaine would have suppressed the junctional escape rhythm and further decreased the rate. Quinidine would be worse as it would suppress the junctional mechanism and further suppress the sinus mechanism. Dilantin will speed conduction thru the AV node but there is no block at the AV node.



PERSONAL AND NEWS ITEMS

DR. KILLOUGH APPOINTED

Dr. Larry R. Killough has been appointed to a five-year term on the State Hospital Board. Dr. Killough is a Family Practitioner with the Joseph-Killough Clinic in Searcy.

AMITY GAINS PHYSICIAN

Dr. Lois Richie recently began Family Practice in Amity.

DR. MONEY TO DUMAS

Dr. William Money has joined Drs. Guy U. Robinson and Howard R. Harris in practice at the Robinson Clinic in Dumas. Dr. Money is a native of New York who received his medical training in Arkansas.

DR. JAYARAMAN SPEAKS

Dr. K. K. Jayaraman discussed new techniques in the field of Cardiology at a recent meeting of the Hot Springs Rotary Club.

DR. ROGERS ELECTED

Dr. Henry B. Rogers has been elected to the Board of Directors of the First National Bank of El Dorado.

DOCTORS RECEIVE GIFT

Drs. Harold and Nancy Haller received a gift of appreciation for their two years of service to the residents of Newton County. The gift was presented to the Hallers from the Board of Directors of the Newton County Medical Center.

NEW RADIOLOGY CHIEF

Dr. Ernest J. Ferris has been appointed Professor and Chairman of the Department of Radiology at the University of Arkansas College of Medicine. Dr. Ferris previously served as Professor and Chief of Radiology at the Boston University School of Medicine.

DR. SALTZMAN PRESENTS AWARD

Dr. Ben Saltzman of Little Rock, Chairman of the Society's Committee on Public Health, recently presented the 1977 4-H Health Project Award to Miss Tammy Roberts of Yell County. Miss Roberts received the award for an illustrated talk on "Mental Health."

HOLT-KROCK CLINIC INCREASES

Four new physicians have been added to the staff of Holt-Krock Clinic in Fort Smith. They are: Dr. Michael Dulligan, Neurology; Dr. Sin-



Dr. Ben Saltzman presents award to Miss Tammy Roberts.

clair Armstrong, Urology; Dr. James DeGueurce, Obstetrics-Gynecology; and Dr. William Sherrill, Orthopaedics.

DR. POFF RELOCATES

Dr. Joseph H. Poff has recently joined the staff of the Heber Springs Clinic. Prior to moving to Heber Springs, Dr. Poff practiced in Trumann for sixteen years.

DR. STINNETT BECOMES DIPLOMATE

Dr. J. L. Stinnett, Jr., has become a Diplomate of the American Academy of Pediatricians. He is associated with the Searcy Medical Clinic.

OFFICERS ELECTED

Dr. Mike Weber has been elected president of the House Staff at the University of Arkansas College of Medicine for 1977-78. Dr. Richard Jones was elected vice president, and Dr. Robert White was elected treasurer.

DR. HENDREN LOCATES

Dr. Mike Hendren has become an associate of

Drs. David B. Cheairs and Carl E. Wenger in their practice at 330 Doctors Park in Little Rock.

DR. GLOVER TO FORT SMITH GROUP

Drs. J. F. Kelsey, Robert L. Sherman, W. P.

Phillips, Homer Ellis, and Marshall Hyde have announced the association of Dr. Bruce Glover in their practice of Obstetrics and Gynecology at 408 South 16th Street in Fort Smith.



**NEW
MEMBERS**

DR. ROBERT W. FORE

The Garland County Medical Society has announced that Dr. Robert W. Fore is a new member of that Society.

Dr. Fore was born in Pine Bluff and received his B.S. degree from the State College of Arkansas in 1969. He was graduated from the University of Arkansas College of Medicine in 1973 and interned at St. Vincent Infirmary. He was in Radiology residency training at the University of Arkansas Medical Center from 1974 to 1977. Dr. Fore is an Instructor in the Radiology Department at the University of Arkansas College of Medicine.

Dr. Fore practices Radiology at 901 West Grand in Hot Springs.

DR. EDWIN FONTENOT, JR.

The Baxter County Medical Society has accepted Dr. Edwin Fontenot, Jr., into its membership. Dr. Fontenot was born in Eunice, Louisiana, and attended Louisiana State University in Baton Rouge. He was graduated from Louisiana State University School of Medicine in New Orleans in 1955. Dr. Fontenot completed his internship at the Confederate Memorial Medical Center in Shreveport. From 1956 until 1958, he was on active duty in the United States Navy Medical Corps.

Dr. Fontenot practiced in Washington, Louisiana, from 1960 until 1967, at which time he en-

listed in the Navy for a second time. From 1969 until 1972, he was in Radiology residency training at the United States Naval Hospital in San Diego, California. Following his discharge from the Navy in 1976, Dr. Fontenot practiced at Porterville, California. He is a Diplomate of the American Board of Radiology.

Dr. Fontenot is associated with the Bull Shoals Hospital in the practice of Radiology.

DR. DORWYN WAYNE CROOM

Dr. Dorwyn Wayne Croom has been accepted into the membership of the Crittenden County Medical Society. He was born in Little Rock and served in the United States Air Force from 1943 until 1946.

Dr. Croom received his pre-medical education at Pomona College in Claremont, California, the University of Arkansas at Fayetteville, and Little Rock Junior College. In 1951, Dr. Croom was graduated from the University of Arkansas College of Medicine. He completed his internship at St. Vincent Infirmary. Dr. Croom practiced for twenty-five years in Malden, Missouri.

Dr. Croom is associated with the East Arkansas Family Health Center in West Memphis. He is a General Practitioner.

DR. BENNIE E. MITCHELL

The Greene-Clay County Medical Society has added Dr. Bennie E. Mitchell to its membership. Dr. Mitchell was born in Kansas City, Missouri. He received his pre-medical education from Hendrix College in Conway, Arkansas State University in Jonesboro, and the University of Tennessee Medical Units, receiving a B.S. degree in Pharmacy in 1962. He received a M.S. degree in Pharmacology from the University of Arkansas for Medical Sciences in 1974, and he was graduated from the University of Arkansas College of Medicine in 1976. Dr. Mitchell completed his internship at St. Vincent Infirmary. He is in Family Practice at 901 West Kingshighway in Paragould.

DR. CAROLYN WILSON BIRD

Dr. Carolyn Wilson Bird has been accepted into the membership of the Sebastian County Medical Society. Born in Washington, D.C., she received her B.S. degree from Wayne State University in Detroit, Michigan, and was graduated from Wayne State University School of Medicine in 1971. Dr. Bird was in internship and residency training at Providence Hospital in Southfield, Michigan.

Prior to locating in Arkansas, Dr. Bird was in practice for two years at Muskegon, Michigan. She is associated with St. Edward Mercy Medical Center in Fort Smith as staff Anesthesiologist.

INDEPENDENCE COUNTY

The Independence County Medical Society added two new members to its membership roll. They are:

DR. JOHN R. BAKER, a native of Little Rock, who received his B.S.B.A. degree from the University of Arkansas in Fayetteville in 1971. He was graduated from the University of Arkansas College of Medicine in 1976 and interned at St. Vincent Infirmary in Little Rock. Dr. Baker is in General Practice at the White River Medical Arts Building in Batesville.

DR. PAUL J. BAXLEY was born in Little Rock, and received his B.S. degree from the University of Arkansas at Little Rock in 1970. In 1974, Dr. Baxley received his M.D. degree from the University of Arkansas College of Medicine. He stayed on at the Medical Center in Little Rock for his internship and residency in Internal Medicine, which he completed in 1977.

Dr. Baxley is in the practice of Internal Medicine at the White River Medical Arts Building in Batesville.

PULASKI COUNTY

The Pulaski County Medical Society has added the following physicians to its membership roster:

DR. J. ROLAND ANDERSON. Dr. Anderson is a native of Monticello, Arkansas, and was graduated from Arkansas A and M College in Monticello in 1970. In 1974, he was graduated from the University of Arkansas School of Medicine. Dr. Anderson remained at the Medical Center for his internship and a residency in Family Practice.

Dr. Anderson is in Family Practice at 1308 East Kiehl in Sherwood.

DR. JOHN HEARNSBERGER. Dr. Hearnberger is a Thoracic Surgery resident at the University of Arkansas Medical Center. He was born in Little Rock, and was graduated from the University of Arkansas College of Medicine in 1973.

DR. DONALD G. LEONARD. Born in Houston, Texas, Dr. Leonard received his B.A. degree from Florida State University in Tallahassee in 1965. He was graduated from Bowman Gray School of Medicine, Winston-Salem, North Carolina, in 1970. Dr. Leonard served his internship at the University of Alabama Hospital and Clinics, Birmingham, and continued there for residency training in Internal Medicine. From 1975 until September 1977, he was in residency training in Rheumatology at the Mayo Graduate School of Medicine and Mayo Clinic, Rochester, Minnesota.

Dr. Leonard is board certified by the American Board of Internal Medicine. He is associated with the Little Rock Diagnostic Clinic at 10001 Lile Drive in Little Rock, where he specializes in Rheumatology and Internal Medicine.

DR. FRANK JUFA LEOU. Dr. Leou is a native of Taipei, Taiwan. He received his M.D. degree from the National Defense Medical Center in Taipei in 1962, and interned at the Tri-service General Hospital in Taipei.

Dr. Leou received three years of Obstetrics-Gynecology training at the Medical College of Ohio at Toledo, and held one-year fellowships in Gynecology and Oncology at Albany Medical Center in New York.

Dr. Leou practices Obstetrics-Gynecology at 1050 Medical Towers Building in Little Rock.

DR. DAVID E. SMITH. Dr. Smith was born in Refugio, Texas. He received his B.S. degree from Harding College at Searcy in 1967 and was graduated from the University of Missouri School of Medicine, Columbia, in 1971. Dr. Smith continued at the University of Missouri Medical Center for his internship and two years of Internal Medicine residency training. In 1976, Dr. Smith completed two years of residency training in Cardiology at the University of Arkansas Medical Center.

Dr. Smith is board certified by the American Board of Internal Medicine. He is Clinical Assistant Professor of Medicine at the University of Arkansas College of Medicine.

Dr. Smith practices Cardiology at Suite 360, Doctor's Park Building in Little Rock.

November, 1977

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Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Barium Enema and Colonoscopy
in Diagnosis of Colonic Disorders

Fayyaz H. Mirza, M.B.B.S.* and S. Mohsin Shah, M.B.B.S.**

INTRODUCTION: Colonoscopy has become an important addition to the traditional method of diagnosing colo-rectal disease. In spite of its popularity only a few reports have compared the diagnostic value of colonoscopy and barium enema.^{1,2,3,4} The purpose of this report is to compare the diagnostic accuracy of both procedures and review the recent literature on the subject.

MATERIALS AND METHODS: Results of endoscopy and barium enema done on 64 patients at the University of Arkansas for Medical Sciences were reviewed. Each patient who underwent colonoscopy had had one or more barium contrast

studies, either conventional or air contrast. Results of endoscopy were made available by the Gastroenterology Division while all the barium enemas were reviewed by a radiologist. Colonoscopic examinations were performed with the Olympus CF MB-2 colonoscope. Fluoroscopy was used during colonoscopy when needed. In most of the cases the colonoscopist had reviewed the radiographs prior to performing the procedure, but the radiologist was not aware of colonoscopy findings when interpreting the x-rays.

RESULTS: (Table I.)
The principal entities recognized during evaluation of colo-rectal disease in our patients were polyps, mass lesion or cancer, inflammatory bowel disease and diverticulosis. These will be discussed individually. Other entities recognized were

*Department of Radiology, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72201.
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Chart 1
BARIUM ENEMA AND COLONOSCOPY

COLONOSCOPY	BARIUM ENEMA							
		NEGATIVE	POLYPS	MASS OR Ca.	GRANULOMATOUS COLITIS	ULCERATIVE COLITIS	DIVERTICULOSIS	EQUIVOCAL
	Negative	3	7	2				4
	Polyps	5	16	1				
	Mass or Ca.	1		7				
	Granulomatous Colitis				2			4
	Ulcerative Colitis					2		2
	Diverticulosis						6	
	Equivocal							2
	TOTAL	9	23	10	2	2	6	12

melanosis coli, radiation enteritis and endometriosis.

In only three patients both colonoscopy and barium enema were negative. This reflects careful selection of patients for these procedures. In addition, many patients underwent these procedures primarily for gastrointestinal bleeding and no diagnosis was made. Such cases were not included in this study.

POLYPS: A diagnosis of colon polyps was made by barium enema in 23 patients. Colonoscopy confirmed the diagnosis in 16 while seven had negative colonoscopic examination. Repeat barium enema examination done in some patients was helpful in determining why an erroneous diagnosis of polyp was made. Some patients had diverticula or air bubbles which were misinterpreted as polyps, especially on air contrast study. In others erroneous diagnoses were the result of poor preparation. Polyps were also detected by colonoscopy in five more patients who had normal barium enema. Most of these were less than 1 cm. in size and none greater than 2 cm.

MASS LESION OR CANCER: In ten patients a diagnosis of mass lesion or carcinoma was made on barium enema. In seven of these patients colonoscopy and biopsy confirmed the diagnosis. In one patient, on both conventional and air contrast barium enema, a mass in the descending colon was seen and diagnosed as a benign or malignant mass; colonoscopy proved it to be a 3 cm. polyp on a short stalk. In two cases no mass lesion was seen on colonoscopy. In one case the x-ray was interpreted as a possible mass in the sigmoid, but after a negative colonoscopy report, it was considered to be spasm and feces, and the study was not repeated. In the second case a persistent narrowing in the descending colon was reported on x-ray, but on a repeat barium enema after intramuscular injection of 2 cc. of glucagon, no such narrow area was seen. In one case a mass, later proved to be vascular malformation, was seen on colonoscopy while a conventional barium enema did not show any abnormality. On air contrast barium enema, mucosal irregularity was suspected in that area.

INFLAMMATORY BOWEL DISEASE: Diagnosis of inflammatory bowel disease was made in ten patients. In two patients a definite diagnosis of advanced ulcerative colitis was made on barium enema and in both it was confirmed by colonoscopy. In two patients a definite diagnosis of

granulomatous colitis was made on barium enema and was confirmed by colonoscopy. In six patients the barium enema was equivocal; in two of these colonoscopy and biopsy gave the diagnosis of ulcerative colitis, while in the other four patients, diagnosis of granulomatous colitis was made. In one patient diagnosis of granulomatous colitis was made on conventional and air contrast barium enema and confirmed by colonoscopy and biopsy. Due to excessive bleeding, colectomy was done and diagnosis of ulcerative colitis was made on pathologic examination. In six patients a diagnosis of inflammatory bowel disease was made on x-ray, but exact differentiation between granulomatous colitis and ulcerative colitis could not be made. On colonoscopy four were diagnosed as having granulomatous colitis and two as ulcerative colitis.

MISCELLANEOUS: In six patients barium enema was inadequate due to presence of feces and minute ulcerations could not be ruled out. Colonoscopy also was either negative or did not give a definite diagnosis.

DISCUSSION: Barium enema combined with proctosigmoidoscopy has been the time honored method of diagnosing the colo-rectal disease. In recent years double contrast barium enema has resulted in improved diagnosis.⁵ However, colonoscopy using the newer fiberoptic instruments offers the advantages of direct visualization and biopsy as well as polypectomy. Colonoscopy is usually performed as an inpatient procedure, although home physicians have used it as an outpatient procedure.⁶ The patients are usually given a clear liquid diet for 48-72 hours and the bowel is cleansed with laxatives and enemas prior to colonoscopy. Adequate to complete cleansing is an absolute necessity. Mild sedation usually using 2-20 mg. of Diazepam (Valium) given by slow i/v injection is employed. Most but not all colonoscopists use fluoroscopy during the procedure. Most experienced colonoscopists are able to examine the entire colon including caecum in 85-95% of the patients.⁷ Photographs, directed biopsy and cytology can be obtained. Polyps can be removed using cautery. Complications are uncommon and include perforation, bleeding, cardiopulmonary problems (in those with underlying cardiac or pulmonary disease) and side effects of premedication, usually respiratory depression and phlebitis. In one large series morbidity of 0.32% and mortality of 0.008% was related to colonoscopy while morbidity for polypectomy was 2.3% with no mortality.⁸ Dis-

comfort to the patient is moderate. Examination is difficult to perform in the patient who has adhesions, diverticular disease, inflammatory bowel disease or irritable bowel. "Blind spots" are encountered at the flexures and sharp bends but can be minimized by expert use of the newer instruments.⁷

Compared to colonoscopy, barium enema is easy to perform and is much less expensive. Expensive equipment is required. Air contrast barium enemas provide improved diagnostic ability and yet can be performed rapidly and without much added discomfort to the patient.⁵ With this in mind, it would be useful to compare barium enema with colonoscopy in various colorectal diseases.

Complete preparatory cleansing of the colon is mandatory prior to both examinations.

POLYPS: Our results indicate that colonoscopy is more accurate than barium enema in detecting or excluding the diagnosis of colonic polyps. In many patients more than one polyp was detected by colonoscopy when barium enema showed only one polyp. In this respect our experience is similar to that of others.¹ Although controversy still exists, most physicians now agree that adenomatous as well as villous polyps have malignant potential. This potential is higher in polyps greater than 2 cm. in size and much less significant in polyps less than 1 cm. in size. It is also generally agreed that cancers cannot be distinguished from adenomatous polyps of colon except by histologic examination of the entire polyp.⁹ For this reason colonoscopy has a clear advantage over barium enema since most pedunculated and some sessile polyps can be removed for histologic examination. It is to be noted, however, that in our study only smaller polyps with lesser malignant potential were missed on barium enema. Wolff and Shinya found 284 polyps in 182 patients and 118 of these were not diagnosed radiologically. However, approximately 80% of these were less than 1 cm. in size. Recently several cases have been reported in which polyps missed on colonoscopy but detected by barium enema were confirmed by repeat colonoscopy.¹⁰

MASS OR CARCINOMA: In our study seven of nine cases reported as mass or carcinoma on barium enema were proved to be carcinomas on colonoscopy and biopsy. The false positive reports were later proved to be due mainly to spasm. Thus barium enema is a good initial diagnostic

procedure and errors can be avoided by good preparation and use of antispasmodics when needed. One lesion missed by barium enema was a vascular malformation and according to Loose² et al. detection of such lesions is rarely possible at barium enema. Colonoscopy is a valuable adjunct to barium enema in the diagnosis of colon cancer but neither procedure has a practical value in mass screening for early detection.¹¹ However, good air contrast studies are essential for barium enema studies to give accurate diagnosis.

INFLAMMATORY BOWEL DISEASE: Our study shows that correct radiological diagnosis in an advanced case of inflammatory bowel disease is possible, while in early cases the diagnosis may be difficult. Other studies^{2,3} have concluded that although radiology is the usual means of diagnosis and assessing the extent and severity of inflammatory disease, it often underestimates both. [Studies of Laufer⁵ and Loose² indicate that double contrast barium enema is superior to conventional barium enema in diagnosis of early inflammatory bowel lesions.] Colonoscopy has the advantage of being able to detect early lesions (e.g. shallow microulcers), to determine the extent of disease more accurately and to obtain biopsies. However, not all cases require colonoscopy and increased risk and discomfort should be taken into consideration. The value of colonoscopy in detection of carcinoma complicating ulcerative colitis is uncertain at present.¹²

DIVERTICULOSIS: All cases reported as diverticulosis on barium enema were proved by colonoscopy. Wolff and Shinya¹ reported a few cases in which colonoscopy detected diverticula which were not diagnosed on barium enema. The main value of colonoscopy in this disease is to rule out other lesions before symptoms such as bleeding are attributed to the diverticula. It will also be of value when the nature of a stenosing lesion is uncertain.¹²

CONCLUSIONS: In any comparison of diagnostic studies, there should be some way of confirming the final diagnosis e.g. surgery or autopsy. Unfortunately such a study is not always practical. Such is the case with comparison of contrast x-ray studies with endoscopy. Before drawing any conclusions one has to be aware of the fact that endoscopic diagnosis is often considered the final diagnosis and negative endoscopic results are usually considered true negatives. Such an interpretation is open to question.¹⁰ Keeping these

facts in mind, we can make the following statements:

(1) Colonoscopy and barium enema are to be considered complementary and not competitive procedures.

(2) Barium enema findings enable the colonoscopists to perform a better and safer endoscopic examination. When the former shows definite abnormalities and the latter is negative, it is advisable to repeat the examinations.

(3) Colonoscopy is superior to barium enema in the diagnosis of colon polyps especially because polypectomy and histologic examination can be performed.

(4) Colonoscopy provides enough additional positive and negative information in cases of colon cancer to make it a worthwhile addition to the diagnostic armamentarium. Such information includes histologic diagnosis and presence or absence of additional lesions such as polyps.

(5) Selected cases of inflammatory bowel disease benefit from colonoscopy when barium studies are inconclusive and it is important to know the extent of disease e.g. before surgery.

(6) In diverticular disease colonoscopy helps to exclude other lesions and to determine the nature of strictures.

(7) Other lesions such as vascular malformations can be detected much more accurately by colonoscopy than by barium enema.

ACKNOWLEDGEMENTS

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Intensive Care Labor and Delivery Unit At the University Hospital, Vienna, Austria

Julius Neumark, M.D.,* Kurt Baumgarten, M.D.,** and Richard B. Clark, M.D.***

The Intensive Care Labor and Delivery Unit at the University Hospital, Vienna, Austria, is a progressive, innovative and high quality area for the care of the mother and her fetus. One of us (RBC) recently had the opportunity to visit and work in this unit. Following is a description of the unit, its mission and its function.

The design of the unit is not ideal, as it was fitted into rooms of the old hospital, which was built at the beginning of this century. Such giants of Gynecology as Wertheim and Schauta worked here. A new hospital is under construction, and the new unit, when installed, should be very close to the ideal. Nevertheless, the equipment and methodology, even in the present unit, are outstanding. This unit was started in 1966,^{1,2} and was completely rebuilt and re-equipped in 1974. There are about 2,000 deliveries a year.

There is no doubt that early, consistent and continued prenatal care should reduce high risk pregnancies and high risk deliveries. Together with postnatal care, most of perinatal death could be brought under control. This has been achieved to a considerable extent in Austria. The Austrian Ministry of Health has introduced a prenatal and postnatal care booklet ("Mutter-Kind-Pass") where all appointments of the pregnant woman from the 16th week of gestation, thru delivery, are recorded. These visits are continued until the child is 5 years old. To encourage the use of this booklet the woman receives about \$1000 from the government, if the booklet is completed and all visits signed by the obstetrician and pediatrician. The mother receives \$500 when the infant is delivered, and the other \$500 after the child reaches the age of one year. The visits until the age of five are left to her own interest. Medical care for mother and child are free of charge.

Further improvement to reduce perinatal mortality and morbidity of mother and child can be gained by better monitoring, allowing more rapid and effective treatment of high risk deliveries. The rapid improvement of monitoring during the last decade has made it possible to recognize

maternal and fetal risks within seconds. A minimum of equipment, such as a fetal heart rate monitor,³ and micro blood gas equipment, for fetal scalp sampling,³ are now considered standard for following the intrauterine passenger. Automatic blood pressure and EKG monitoring of the mother are also highly desirable. These would be useful in every delivery unit, but complete monitoring possibilities would be very expensive and would not be economically feasible at small hospitals. Therefore, so called intensive care and delivery units have to be established at medical centers, where high risk deliveries from a large geographic area can be concentrated.

Description of the Unit

There are nine labor and delivery beds (in Europe it is common to remove the foot of the labor bed, put the patient up into stirrups, and deliver them in the same bed) (Fig. 2) in the unit. Each bed is equipped with fetal monitors, infusion pumps, and blood pressure devices. Each bed is surveyed by a closed circuit TV camera, and two way voice communication with the Central Station. In addition to patient care, research can be performed, as data can be stored in computers.

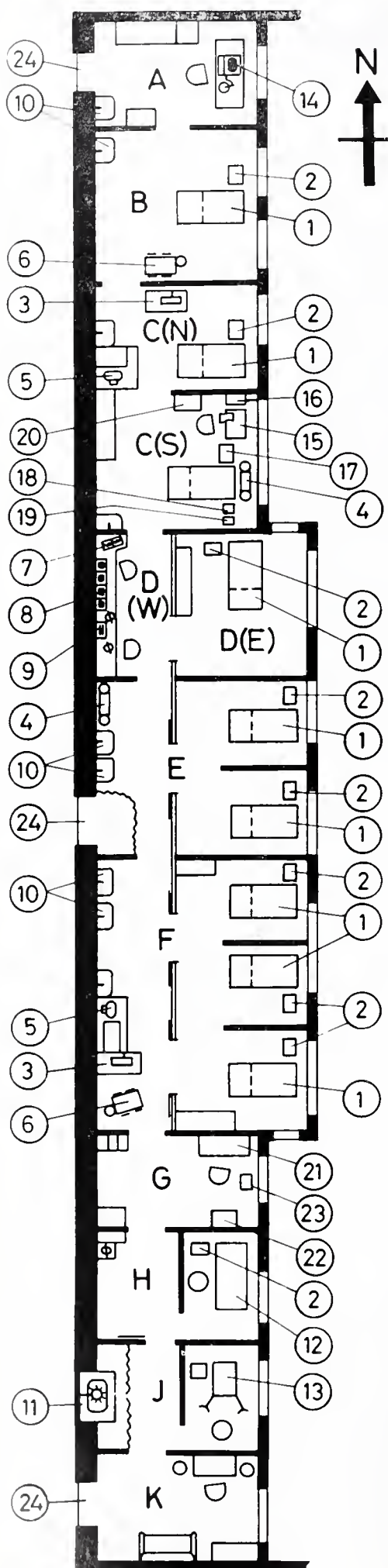
Figure 1 shows a plan of the complete labor and delivery unit. The numbers, which are used to explain the details on this plan, correspond to the numbers on the photographs (Fig. 2 through 8), allowing for easy orientation and identification by the reader. The rooms are marked with letters A thru K (Fig. 1). On the east side is an outside wall, with windows; on the west side, an inside wall, with entrances and exits to the hospital corridor. If a room is divided into two parts, and if this is of special interest, as are rooms C & D, the parts are marked with the points of the compass, N, E, S or W.

Room K is a waiting room for incoming patients and occasionally, outpatients. At the east side of room J is an examining table, used mostly for amnioscopy.³ Room H is used for fetal monitoring (external) of outpatients, amniocentesis, or oxytocin challenge tests.³ Room G is a small laboratory (Fig. 3) for blood gas determinations, and rapid hematocrit and urine checks. There is a large laboratory owned by the Department of Obstetrics and Gynecology one floor below where

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complete analyses, including hormonal levels, and cytology, are performed. In Room G number 21 is an Astrup apparatus (Radiometer, Copenhagen), widely known in the U. S., while number 22 is another blood gas apparatus, developed and made in Austria, the AVL-Gas-Check by K. Harnoncourt. It is simple and easy to use, and results are often checked against the Astrup. The next two rooms (E & F) are used for low risk delivery. Each labor bed, of course, is provided with a fetal monitor, infusion pump, closed circuit TV, and loudspeaker.

Each labor bed is turned into a delivery table at the time of delivery (Fig. 2). Also, during labor, scalp sampling³ (Fig. 4) or amnioscopy³ are done in the lithotomy position. At the head of one bed is an anesthesia machine (Fig. 1), (Fig. 2, number 4). The bed may be put into the Trendelenburg position if necessary. Natural childbirth has been commonly used in the past, but lumbar epidural anesthesia is now used frequently. There is a second anesthesia machine available in the unit—it is taken to wherever it is needed.

Next to each bed is a monitor for internal and external monitoring³ of the fetal heart rate and uterine contractions. External monitoring is performed during labor, until membranes are rup-

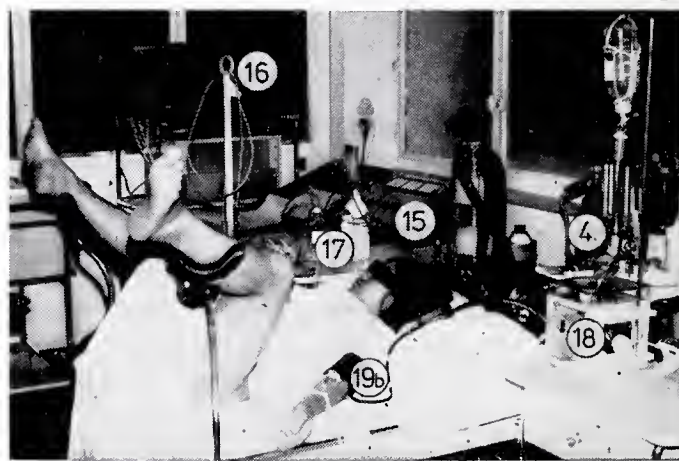


Figure 2.

Monitoring a patient with toxemia in bed C (S). The patient is prepared for scalp sampling. No. 4, Anesthesia machine. No. 15, six channel monitor. No. 16, tape recorder. No. 17, cart for transducers. No. 18, infusion pump. No. 19b, cuff for Arteriosonde. All labor beds in the unit are converted into delivery tables when delivery is to occur.

Figure 1.

Floor plan of the Intensive Care Labor and Delivery Unit. Note rooms A through K (their functions described in text). Numbers are to denote identification of equipment (see below). Numbers also correspond to numbers in Figures 2 through 8.

- | | |
|--------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1. Labor and delivery bed | 12. Couch |
| 2. Bedside cart with fetal monitor and infusion pump | 13. Examining table |
| 3. Newborn resuscitation center | 14. Computer terminal |
| 4. Anesthesia machine | 15. Monitoring system with 6 channels |
| 5. Scale for newborn | 16. Taperecorder for data storage |
| 6. Incubator | 17. Bedside cart for transducers for 6 channel monitor |
| 7. Central display for fetal heart rate (2 screens, each showing 4 patterns at once) | 18. Infusion pump |
| 8. Central station TV monitoring screens | 19. Ultrasonic blood pressure monitor |
| 9. Central alarm (from patient's beds) and speaker system | 20. Epidural cart |
| 10. Sinks | 21. Astrup blood gas machine |
| 11. Shower | 22. AVL blood gas machine |
| | 23. Centrifuge |
| | 24. Entrance or exit |

tured. The internal monitor is then applied. An infusion pump is also stationed by each bed for the accurate infusion of oxytocin, or beta-mimetic drugs for the inhibition of labor.

In rooms B and D (E) are single labor and delivery beds for specialized purposes, for example, if the husband desires to stay with his wife. At C are two beds for special high risk deliveries. At C (N), which is normally equipped, high risk newborns are delivered (note newborn resuscitation center, number 3) while at C (S) there is equipment for a high risk mother, as well as infant. The special equipment of C (S) is shown in Figs. 2 and 5. The main monitor, especially constructed for the Department by a German company (Hellige) consists of six channels (Fig. 2, number 15). Fig. 6 indicates its design. Usually two pressure lines are used for intrauterine contraction monitoring (one as a back-up). A third line is ready, in case maternal intra-arterial monitoring (usually radial) is desired. Two channels are used for ECG, one for the mother, and one for the fetus. Both are transferred to the monitor by telemetry and the beat to beat heart rate is shown on the paper chart. Other inputs are available (such as respiration, EEG, etc.), for research purposes. All this information can be permanently stored in the tape recorder (number 16). This monitor is also connected with the Central Station and the Medical Computing Center and results are immediately shown at the Computer terminal in Room A. The Terminal displaying a calculation of heart rate, intensity and frequency of the last pain, deceleration patterns, etc., is shown in Fig. 7. These types of on line calculations are not yet routine,⁴ but show great potential for the future. Great quantities of data concerning deliveries are stored and are retrievable for future use. Rooms B, C (N), D, E and F are equipped with simpler fetal monitors

than in Room C (S). These are Fetal-Puls Monitors FM2 by Sonicaid Co., or Roche Cardiotakographs. Data from these machines are collected daily from the records by a secretary and put into the computer. The infusion pump for bed C (S) is a Cardiff Infusion and Alarm system. If fetal heart rate decelerations occur, the infusion automatically is stopped, and an alarm sounds. The other beds are provided with simpler infusion pumps.

Blood pressure of the mother is monitored by intra arterial means, or, more commonly, by an ultrasonic apparatus (Arteriosonde 1217, Roche) (Fig. 5, number 19a). The cuff is automatically inflated at predetermined intervals, and recorded (number 19c). Thus a non invasive record of the maternal systolic and diastolic pressures is obtained. At all other beds maternal blood pressure is obtained and recorded by ordinary means; there are three other Roche Arteriosonde's, in addition to the usual mercury and aneroid manometers.

The Central Station is found at room D (W) (Fig. 8). There is a central display for fetal heart rate (number 17) and a closed circuit TV and microphone to communicate with all the patients (number 8). The uterine contractions and fetal heart rate may be noted while viewing and talking with any patient. Infant resuscitation stations are



Figure 3.

Laboratory. No. 21, Astrup Apparatus. No. 22, AVL blood gas apparatus. No. 23, Centrifuge.

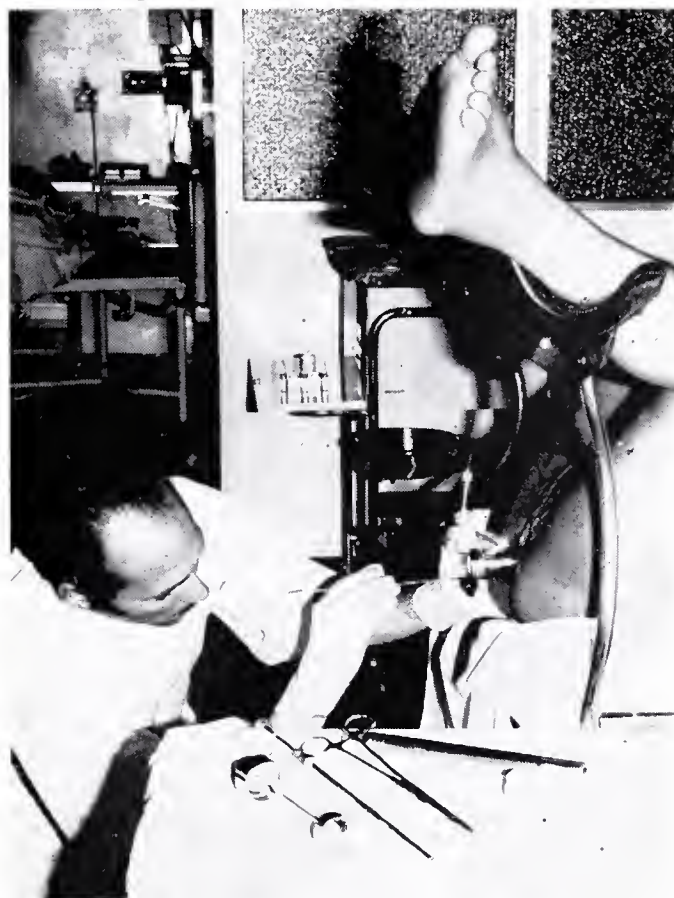


Figure 4.

Scalp sampling.

set up at number 3 (Fig. 1), and contain endotracheal equipment, lights, warmers, Apgar timers, temperature monitors, oxygen, suction, bicarbonate, dextrose, etc.

Patients requiring Cesarean section are taken to the operating room, which is on the floor above. Ultra sound determinations for fetal head size, and placental localizations are available on the intensive care unit, and on the floor below. All

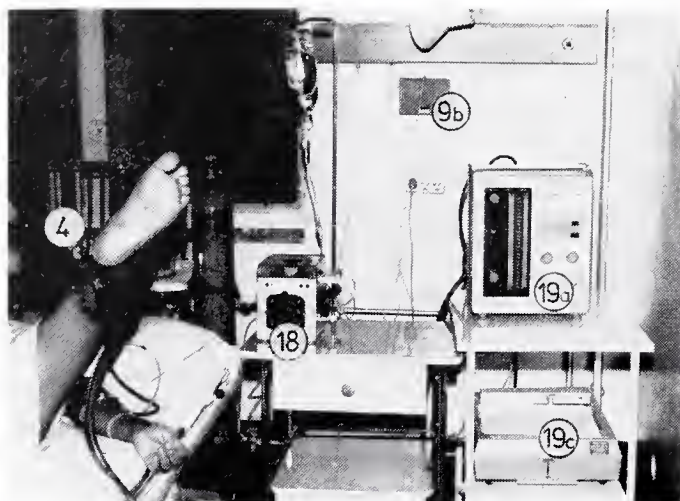


Figure 5.
Bed C (S). No. 9b, loudspeaker and microphone to Central Station. No. 18, infusion pump. No. 19c, recorder for arteriosonde.

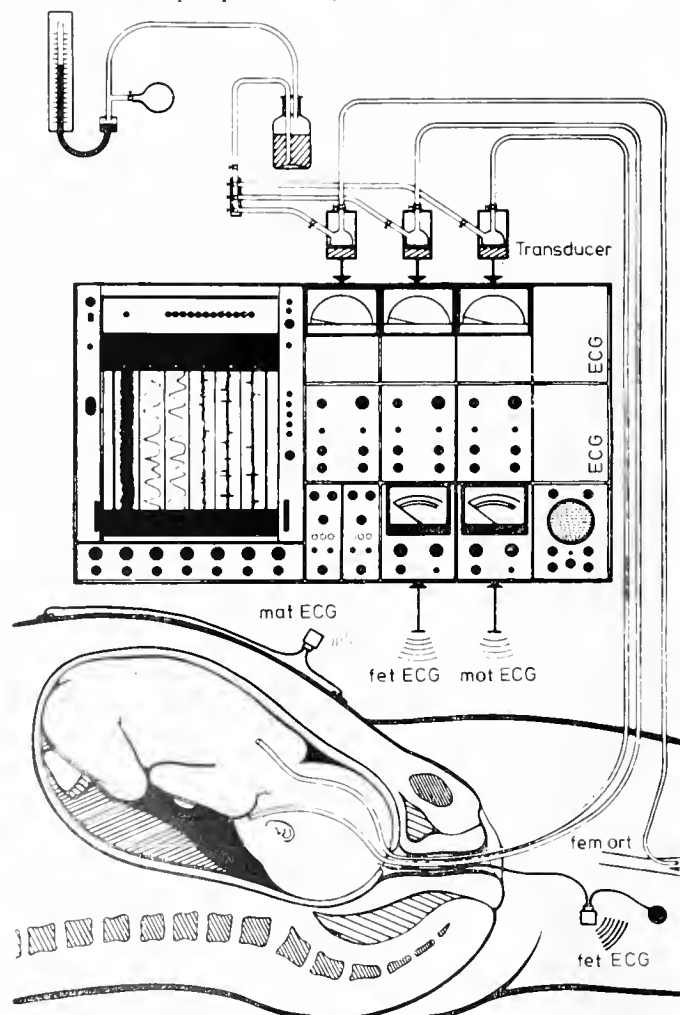


Figure 6.
Design of 6 channel monitor with 2 catheters for intrauterine pressures, maternal and fetal ECG, and femoral arterial catheter for blood pressure monitoring.

prenatal patients have three ultra sound determinations during pregnancy.

Summary

An Intensive Care Labor and Delivery Unit at the University Hospital, Vienna, has been described. Although set up for research, teaching, and care of the high risk mother and her infant, much is applicable to all delivery units. This progressive and innovative unit points the way to the future care of both high risk and routine deliveries.

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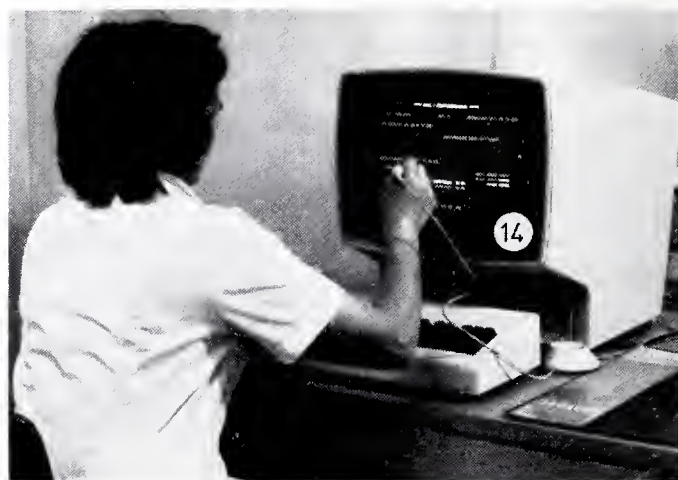


Figure 7.
Computer terminal.



Figure 8.
Central station. No. 7, central display for fetal heart rate pattern. No. 8, closed circuit TV.



Office Orthopaedics

The Hand: Timing of Repair of Cleanly Incised Tendon Injuries

Kenneth G. Jones, M.D.*

As a consequence of the changing nature of medicine, medical authors often regret having published categorical statements. That which seems certain when written may be of only an historical interest in the near future. Dictums concerning the timing of repair of cleanly incised tendon injuries, which were regarded as inviolate a few years ago, are now being questioned by thoughtful surgeons. It had been generally accepted that all tendon injuries should be repaired immediately. While it is still true that in the case of the mangled or crushed hand, definitive surgery should be performed at the earliest possible time, it is now more widely appreciated that the cleanly incised tendon injury may best be managed by initially closing the skin wound and delaying the tendon repair. Although salvage of the crushed or mangled hand can be extremely complicated for any surgeon, it should not be regarded as a greater challenge than repair of the cleanly incised tendon injury. With the former injuries by virtue of their nature, some degree of residual disability is inevitable; while with the latter injuries successful management may be followed by zero disability. Always the challenge is to obtain the best possible result.

Not only does the cleanly incised tendon injury not require immediate repair, but in some instances if corrective surgery is delayed, a superior end result may be obtained. We will consider some of the reasons.

It would seem that only one dictum relative to

repair of tendons is inviolate, and that is: "Repair of cleanly incised tendons in the hand should not be undertaken unless all of those factors relative to the surgery planned are optimum." The condition of the patient, the environment in which the proposed surgery is to be effected, and the ability of the surgeon constitute the basic units that will determine the extent of success of the undertaking. These basic factors are influenced by many things. It is evident that the primary treating physician will have the greatest influence on the ultimate result.

The patient's age, sex, occupation, general health and his suitability to receive the anesthetic required and all of those variables which determine the nature of the wound or wounds must be evaluated. It would seem superfluous to observe that "all patients do not need the same repair." Treatment should be individualized.

No surgeon will achieve beyond his operating environment. The lack of proper instruments or sufficient and knowledgeable assistants or proper anesthesia or hemostasis or an adequate operating room can doom almost any operation to failure before outset. While there must be emergency rooms which afford a favorable environment for repair of tendons in the hand, many present environments hostile to exacting surgery. After hours, operating rooms are often inadequately staffed so they too may present an unsatisfactory or inadequate work area. Only the inexperienced or the most relaxed surgeon will repeatedly fall into these traps. When the operating environ-

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ment is inadequate, the surgeon will do well to return another day.

Where the patient and the environment suggest all is "GO", the surgeon is then obligated to critically evaluate himself. Not only will he wish to review his knowledge and his experience in this area, but he must be most critical of his own current mental and physical fitness. Injuries of this nature often present themselves at the end of a long day when the physician is fatigued. He cannot perform as efficiently as were he rested. This is especially true for the older surgeon. This alone may be sufficient to delay definitive repair of a cleanly incised tendon wound. As observed, to obtain an optimum result, all factors must be under control. In the case of the cleanly incised wound when all conditions are not satisfactory, the surgeon will do well to elect not to perform a primary definitive repair (Table I, A). He may

anticipate a better result by delayed primary repair (Table I, B) or a secondary procedure (Table I, C).

In the event the surgeon elects to do a delayed procedure, the wound should be cleansed and the skin closed with a minimal number of surgical foreign bodies being left buried in the wound. Antibiotics should be considered and used as the surgeon's opinion dictates. One will observe by comparing columns A, B and C of Table I that after the wound has healed without infection, the treating physician will have essentially the same options as existed initially. Subsequently, he should be able to introduce the prepared patient and himself into an ideal operating environment.

There is considerable evidence that superior results follow initial closure of the cleanly incised tendon wound followed by delayed repair under more nearly ideal conditions.

TABLE I

TIME OF SURGERY RELATIVE TO WOUND

PROCEDURES AVAILABLE	A	B	C
	PRIMARY REPAIR UP TO 18 HOURS	DELAYED PRIMARY REPAIR 18 HRS. TO 3 WKS.	SECONDARY REPAIR AFTER 3 WEEKS
1. Closure of skin only	YES	NO	NO
2. Tendon suture	YES	YES	YES
3. Tendon advancement			
a. without lengthening (1cm or less)	YES	YES	NO
b. with lengthening at wrist	YES	YES	YES
4. Free tendon graft			
a. without a silicone rod	YES	YES	YES
b. with a silicone rod	NO	NO	YES
5. Tendon transfer	NO	YES	YES
6. Tenodesis	YES	YES	YES
7. Tendon prosthesis (experimental)	NO	NO	?

Table I - Procedures available to the surgeon for treatment of tendon injuries relative to time of wounding.



New Concepts in Exercise Physiology^a

Barry S. Brown, Ph.D.,* Charles Caldwell,
Ph.D.,** and James A. Arnold, M.D.***

New concepts in the understanding of muscle physiology have occurred in the past five years. However, only recently has this new knowledge been applied to the training and evaluation of the athlete and nonathlete. We shall discuss a few of these concepts of special relevance to the orthopaedic physician and allied health personnel interested in sports medicine, and indicate how we are applying these concepts in specific training schemes.

The basic internal structure of muscle has been known for 25 years. Structurally, the sarcomere is the smallest anatomical unit of a muscle fiber and contains the actin and myosin protein myofilaments.⁵ During contraction the actin "slides" across the heads of the myosin myofilament.¹ At closer inspection, we see that the actin contains two proteins, troponin, and tropomyosin, which may function to control the force of contraction, and the head of the myosin filament possesses the chemical, ATPase, which regulates the speed of "sliding" of the actin across the head of the myosin protein. The strength of a muscle contraction is directly related to the stretch of the sarcomere. As a muscle is stretched to 50 percent beyond its resting length, the greatest force is achieved. However, stretching the sarcomere more than twice its length at rest will cause a sharp decrease in contractile force.⁴ Some systems of weight training, which advocate excessive stretching, prior to a positive muscle effort, may be diminishing the

capacity of a muscle to respond at its maximum effort.

Perhaps the most misunderstood discovery in muscle function is centered around the recent observations of different fiber types within a whole muscle. In truth, there are three types, the characteristics of which are described with sufficient clarity in a recent text.⁴ Briefly, the three fiber types are described below:

1. Fast contraction, fast fatigue (FF); referred to previously as "white" muscle, these fibers possess a great deal of glycogen, myosin ATPase and other glycolytic enzymes. They contract with considerable force and speed, but fatigue quickly.
2. Slow contraction (S); these "red" fibers contain large quantities of "aerobic" enzymes and myoglobin, contract with one tenth the force of FF fibers, but fatigue slowly.
3. Fast contraction, fatigue resistant (FR); these intermediate fibers possess many of the characteristics of FF fibers (e.g. considerable force, large quantity of glycolytic enzymes), however, they fatigue much more slowly than FF fibers.

Although these fiber types have not been shown to change or "mutate" from one form to another, they are capable of assuming some of the functional (as well as anatomic) characteristics of the other. This is dependent upon the "specificity" of training employed. Orthopaedic physicians, trainers and physical educators must take into account the differential adaptability of these three fiber types in devising training and/or rehabilita-

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tive schemes if they wish to bring about the appropriate muscular adaptations. Indeed, it has been convincingly demonstrated that endurance training will cause an increase in the characteristics of slow fibers in animals and humans.^{2, 3, 6}

Using the concept of "specificity of training" to evoke a desired muscle change, we have devised training schemes, applying our knowledge of neuromuscular physiology to practical use. We shall describe briefly two of the exercise training programs with which we have been experimenting during the past year.

Studies previously conducted in the Human Performance Laboratory at the University of Arkansas have indicated that maximum muscle effort is difficult to achieve throughout a full range of motion without motivation. That is, instant feedback is needed to keep the individual working at near maximum capacity, in turn, producing maximum strength gains. We have developed an apparatus designed to produce a maximum effort to increase vertical jump. Referred to as MOJUMP (motivational vertical jump), the technique simulates actual jumping along with instant feedback as the jumper reaches his maximal effort (Figure 1). Ten consecutive maximum efforts are required to complete the daily training protocol. Initial data, using this approach, indicates that vertical jump may be increased by as much as six inches in three weeks.

The second approach is more general, in that it can be applied to nearly every aspect of training and rehabilitation. We are using a digital strength meter, which displays the actual force exerted during an exercise routine. Using this technique, one's maximum capability can be evaluated, and a program devised which specifies the percentage of effort one applies throughout a full range of movement. This can be applied to any muscle group for which an exercise can be devised and used with many different pieces of exercise equipment. Indeed, we have used it as a measuring tool to evaluate the progress of personalized exercise programs. Presently, we are working on the next logical exercise sequence, which we believe will become the standard for exercise prescription for both athletes and non-athletes. We are developing an electronic apparatus which will display the force produced, calories expended and the aerobic points earned for any specific exercise. Furthermore, we are developing a model that will display horsepower and velocity (for athletes). With this new concept

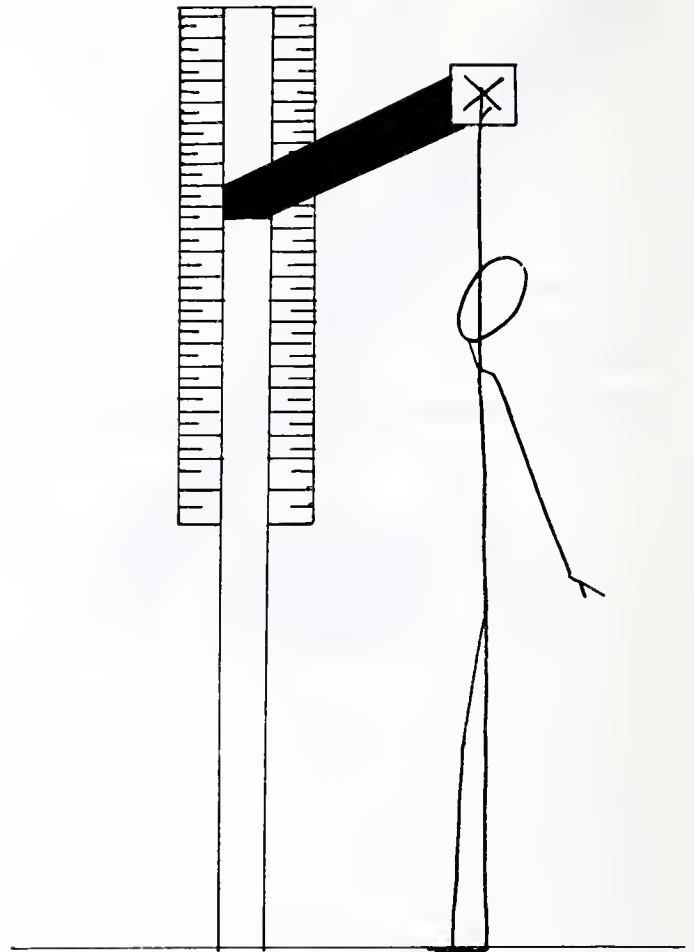


Figure 1.
Stick figure illustration of MOJUMP. Contact must be made on the X mark, extended 2 feet from the measured height, to ring the bell. The bell must be rung 10 consecutive times to complete the workout, up to a maximum of 40 jumps.

of training, the physician, coach, therapist, trainer or physical educator will not only be able to prescribe exact training programs, but evaluate the athlete's force, momentum and speed during any specific skill. We believe that the only limitation to its use is the imagination of the user.

FOOTNOTES

^aA portion of this manuscript was presented by Dr. Brown at the Sports Medicine Symposium, University of Arkansas College of Medicine and Allied Health, Little Rock, Arkansas, on August 5, 1977.

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BRUCELLOSIS (*Brucella Canis*)

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Brucellosis is the general name given an infectious systemic bacterial disease of different species of animals that also affects humans. The species of *Brucella* are: *B.abortus*, principally affecting cattle; *B.suis*, principally affecting swine and cattle; *B.melitensis*, principally goats; *B.ovis*, in sheep (rams); and most recently, *B.canis*. Human infections have been reported with all *Brucella* species except *B.ovis*.

The disease has been referred to by a variety of names including Malta Fever or Undulant Fever in man and contagious abortion or Bang's Disease in cattle, but now the disease in all species is referred to as brucellosis. All forms of brucellosis in the various animal species are caused by bacteria that are similar in their properties, but which differ in their host preference and in the severity of the disease produced.

This article is to discuss *Brucella canis* recognized since 1967 as the cause of canine abortion. The disease has been reported in the United States as occurring in dog owners and laboratory workers. Human cases of *B.canis* infection have presented symptoms similar to those observed in classical brucellosis. Fever, chills, malaise, headache, sweating, weakness, and body aches have been reported as significant symptoms.

Human infections have been reported from contact with a household dog and an animal caretaker working with adult dogs known to be infected with *B.canis*. Other human infections were acquired by laboratory technicians working with *B.canis* organisms by oral exposure during pipeting procedures.

The literature emphasizes that routine *Brucella*

agglutination tests, which usually use *B.abortus* antigen, have been uniformly negative for all persons with *B.canis* disease or infection. However, when agglutination tests were performed with *B.canis* antigen they have been positive for all patients whose serum was taken while symptoms were present.

Patients with *B.canis* disease or infection have been treated with several antibiotic regimens, including tetracycline, streptomycin and sulfadiazine (singly or in combination) and ampicillin. The literature informs us that human cases of *B.canis* respond very well to treatment with tetracycline antibiotics. This is in contrast to human brucellosis acquired from other species of animals. *Brucella canis* is the species reported to be slightly invasive for man, the course of the disease is mild and usually localizes without complications.

Brucellosis in dogs caused by *B.canis* is reported to be quite variable in its clinical manifestations, ranging from outright abortions and male genital disease to inapparent infections. All breeds of dogs seem to be susceptible. Animals may present an unthrifty appearance, fatigue, loss of alertness and failure to perform tasks for which they were trained.

Canine brucellosis may present an economic problem for commercial dog breeders. Since there is no certain treatment for the disease, the recommended procedure for dogs with brucellosis in breeding kennels is disposal. For individual pets with the disease other measures are being tried. For example, isolation so the animal cannot breed, spaying or castration, and attempts to treat the disease before deciding on euthanasia.

*Director, Veterinary Public Health, Arkansas Department of Health, 4815 West Markham, Little Rock, Arkansas 72205.

New methods in the management of *B. canis* are being used such as the rapid slide agglutination test for canine brucellosis permits a presumptive diagnosis within minutes. If the rapid slide test indicates a positive reaction, further laboratory studies are necessary before a final diagnosis is made.

The reported cases of canine brucella canis in Arkansas for the past five years is as follows: 1973—1 case; 1974—1 case; 1975—4 cases; 1976—4 cases; 1977 (to date) 3 cases.

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EDITORIAL

The Age of Idiocy

Alfred Kahn, Jr., M.D.

The historians have divided the eras of mankind into various periods and appended various tags to them as the dark ages, the age of reason, and so on. The transition of one epoch into another is so insidious that the boundaries have to be defined by later day students.

Surely, this century has witnessed some traumatic upheavals and changes. Perhaps the greatest change is the unbridled attacks on our democracy and its institutions—and frequently by small numbers of vocal fringe groups who do not represent a majority opinion. Their clamor is loud and repetitive and often brings results not in the best interests of our nation. This does not indicate that the need for intelligent dissent is lessened. This is the essential element in a republic or a democracy. However, it is idiocy to bow to the lunatic fringe.

Organized medicine is a necessity in a nation dedicated to private enterprise. It is the forum for discussions of scientific matters and the physicians' special role as an ethical healer in the com-

munity. Before the congress are discussions of possible new laws — any one of which, if enacted, might lead to socialized medicine. This is not a specter or a boogey-man but a genuine threat to the American way of life, and it is well to be reminded of this once in awhile.

The main argument against socialism is surely a loss of individual freedom. Suppose it starts with medicine. Where does it lead to next? The business man cannot open his planned new business—or if he does he is lost in a morass of government regulations. The step by step plans to a totally controlled society have been discussed at great length but to not much avail—and are well known as is the soporific technique of gradualism in achieving the goal.

Perhaps of equal importance in a society which stands with one foot in the camp of private enterprise and the other in the camp of socialism is—can society afford the schemes of socialism. In other words can a partially socialized society afford socialized medicine, socialized housing, etc. The

cost of socialism whole or partial is tremendous. In a perfect world society, there would be no need for national defense. But human nature and human societies are imperfect; bickering and wars exist; we have to have a budget for national defense to survive as a nation. This does not mean that some moneys should not be set aside for the betterment of the quality of life and to provide certain basic needs but it is obvious that the individual and his family will have to supply many needs that the government cannot afford; a somewhat oblique example of the contrary is New York City.

There are other areas of irrationality in our society, some are close to home. One is the need for black physicians. This is not a medical school failure as such. It is a social failure of serious proportions in which the black rate has not been permitted to enter the economic mainstream. The disruptive effects of poverty and low income on the educational process are too well known to document here. The medical schools are ready and anxious to accept black candidates but society has to prepare the candidate so that he can effectively compete for the limited number of positions by improving the black's total background. Some of the cure is totally free—it is a must to put aside prejudice. A facile brain may be enclosed in a skin of any color—black, yellow, white, red, etc.

What are we doing with the problems brought

about by an aging population? Medicine has brought about lopsided aging in many instances. Some parts of the body stay relatively young and others show marked senility... a stroke is a devastating lesion if it impairs mentation, severe arterio-sclerosis with memory and reasoning loss is a disaster. This situation begs the total question: how do you care for the aged and the chronically ill? Perhaps medical research should intensify in the geriatric and chronic disease area—and examine its prospective goals. What about hospitalization? Should a veteran with a non-service connected disability have precedence over any other citizen in a government-operated hospital? Should the elderly gradually fade and shrivel in impersonal surroundings? Many of these problems would be capable of solution if the family unit persisted; the family that provided home care for the aged, the orphaned, the unfortunate; a mobile America has shattered this tradition. Government of all levels has been left to fill the gap but how? How with decency and effectiveness?

As is always the case there are more questions than answers. The overview of USA 1977 is generally good but we as physicians and citizens have problem areas. The solutions are found in a contemplative action and not a jaw-jerk answer promoted by vocal detractors with improbable schemes.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Congress was moving to wrap up work on as much health legislation as possible in preparation for the gathering storm over national health insurance (NHI) in 1978.

The Administration was putting strong pressures on Senators and Representatives to move quickly on President Carter's proposal for a "cap" on allowable hospital revenue increases, insisting that the cost containment plan was a prerequisite for NHI.

Despite the sense of urgency imparted by the Administration, it appeared that jurisdictional problems, a cooling-off by organized labor on the plan, and stiff opposition from hospital and physician groups, would serve to carry the issue over until next year.

The Administration was keeping mum about the form its NHI program will take. Task forces of planners were busy at HEW drafting various approaches. About the only certainty at this stage is that the Carter NHI bill will call for imple-

mentation in stages to avoid a crushing financial burden on the federal treasury.

Few expect Congress can do more next year than take a good look at NHI. The awkward jurisdictional tangle in Congress, where two committees in both House and Senate must share jurisdiction, makes for delay. With lawmakers anxious to get the session over with quickly so they can campaign for the 1978 elections, only the most sanguine NHI proponents predict final congressional action next year.

Analyzing the NHI situation for the benefit of Congress, the Congressional Budget Office (CBO) issued a report warning that: "if strategies to contain health expenditures are not adopted soon, the possibility of enacting a comprehensive national health insurance program may be adversely affected."

In addition to the Hospital Cost plan, Congress in the final weeks of the 1977 session was faced with numerous other health issues. Among the measures hanging fire were the Health, Education and Welfare Department appropriation, which had been stalled over the abortion issue; new federal regulations for clinical laboratories; Medicare-Medicaid fraud and abuse; federal aid for rural health clinic physician extenders; the Administration's plan for expanding the child health program; and an omnibus drug bill making many changes in Food and Drug Administration (FDA) operations and regulations, including new labelling language.

Some of these bills were fated to remain lodged in Congress until 1978. The only sure bet for passage in 1977 was the appropriations bill which gives HEW several billion dollars more than President Carter recommended and continues to bar federal Medicaid payments for most abortions.

Other major health bills before Congress included an 18-month delay in the proposed FDA ban on saccharin; amending the renal disease program to encourage self-dialysis and kidney transplants; establishing a separate Department of Health; and freeing federal scholarship stipends from income tax.

* * * *

The gloomy report by the Congressional Budget Office (CBO) on health spending advised House and Senate Budget Committees that current control efforts "will apparently have little effect on the upward trend in health expenditures . . ."

The report said existing reimbursement, facili-

ty, and utilization containment programs can be altered by increasing or decreasing the level of regulation. "Changes must be made in hospital reimbursement practices if some immediate impact on hospital expenditures is to occur," the report said.

According to the CBO, "A successful program, whether administered at the state or federal level, would have to break the automatic cost-increase/revenue-increase relationship that is currently enjoyed by individual hospitals. Certificate-of-need programs could be strengthened through increased financial support for the state agencies, more precise federal guidelines, and perhaps limits on capital spending. The cost-effectiveness of PSROs might be improved by restricting utilization review to more questionable medical practices or by emphasizing pre-admission review."

The way the CBO sees it, "The expansion of regulatory efforts is an attempt to compensate for the overutilization of health care and the failure of high costs to lessen demand. Appropriate changes in the underlying supply and demand factors could reduce the need for hospital regulation. Moreover, because these supply and demand factors operate throughout the entire health sector, successful containment of hospital expenditures might accelerate nonhospital expenditures. Increases in patients' out-of-pocket costs or limits on physicians' fees might, however, increase price-consciousness related to nonhospital care."

The report continued: "Federal regulatory efforts to contain the supply of resources have concentrated on beds and facilities, virtually disregarding manpower and technology. While prospective reimbursement and utilization control programs can be strengthened and thereby reduce health expenditures, their effectiveness may be limited without national health insurance, because of the number of third-party payers and the variation in their payment procedures. Supply policies, however, might be quite effective without national health insurance. (Countries with national health insurance plans are relying increasingly on constraints in supply to contain health expenditures.)"

Future growth in the number of physicians could be reduced, particularly by restricting the influx of foreign medical graduates, CBO said, adding:

"Because each additional practicing physician generates expenditures for both hospital and physician care far beyond the level of his net

income, strategies to reduce the impact of each physician on total expenditures could be considered. Altering reimbursement schedules and increasing the proportion of physicians in primary care and in prepaid health plans are possible strategies."

Present reimbursement, facility, and utilization containment programs directed at hospitals could be changed by strategies which represent incremental change, stronger regulation, or weaker regulation, said CBO. "A strategy of reducing regulation would result from the belief that either a more competitive health-care market or greater price-consciousness would be more effective in containing costs."

The report conceded that "because of limited knowledge, it is not possible to predict accurately the cost savings or increased costs resulting from increases or decreases in regulatory efforts."

Concluded the report:

"Under current policies, health expenditures will continue to absorb a larger proportion of the nation's resources and of the federal budget. These trends could be slowed down significantly by increased regulation similar to that recently proposed by President Carter to contain future hospital revenues and investments. Increased cost-sharing by patients, or a significant reorganization of the health-care delivery system are other alternatives. If strategies to contain health expenditures are not adopted soon, the possibility of enacting a comprehensive national health insurance program may be adversely affected. Moreover, a long delay is likely to produce even more severe proposals for containing health expenditures—proposals that are likely to freeze prevailing health expenditure patterns."

* * * *

In an 8,800 word critique, the Pharmaceutical Manufacturers Association characterized the Final Report of the HEW Review Panel on New Drug Regulation as a "philosophical endorsement of corrosive regulation" that would create "impediments to the efficiency of the new drug approval process."

Though commending some specific recommendations and comments, including the conclusion that the Food and Drug Administration is neither pro- nor anti-industry, PMA President C. Joseph Stetler says the Panel "consistently slides into the trap of statutory and regulatory solutions."

"Thus we come to a stunning statistic," the

PMA covering letter to the critique reads. "All told, the Panel makes some 90 recommendations, many of them calling for new increments of regulation—without one mention of any withdrawal or lessening of agency power. While many of these suggestions are procedural in nature, cumulatively and inevitably, they would change our national policy toward drug research and drug products. In our view, that change would unquestionably be for the worse in the form of more cumbersome, costly and slower processes."

PMA said the Panel displays "insufficient understanding of the real world of science," that it leans "toward an adversarial rather than a co-operative philosophy for FDA-industry relationships," and that it ignores the "innovative capabilities" of the American pharmaceutical and device industry, with its more than a billion dollars a year research effort.

"At some point, regulatory demands can become so strict that government will have erected formidable barriers to competitive entry and only the larger and best-equipped firms can continue in the race. In the process, useful new drugs will be lost or delayed and the cost of those still available will be inflated. Government then will have created more concentration in an industry where both price and product competition have been intense, with the benefits flowing ultimately to the consumer," PMA asserted.

PMA charged that in perception of the "drug lag," the Panel "manifests further disinterest in the industry's R & D (research) challenges." The critique lists more than a score of important drugs "now accepted as safe and effective in the U. S., which went on the market overseas two or more years ahead of U. S. introduction. The cost of these delays to American patients, in human terms alone, is incalculable."

* * * *

The American public has been getting "a superficial sales pitch" on the worth of Health Maintenance Organizations (HMOs), according to a study by the American Medical Association.

The report dealt with important aspects of the HMO business that government reports, favorable to HMOs, "usually fail to reveal," said the AMA.

The Carter Administration pledged a renewed effort to expand HMOs and strengthen the federal aid program. But the review by the AMA raised questions about some widened public assumptions about HMOs and claims made in their behalf.

Advocates of HMOs have claimed that HMOs

place a special emphasis on preventive care, "but recent studies indicate that fee-for-service practitioners provide *more* preventive care than do HMOs," said the AMA report.

Much of the "efficiency" of HMOs "appears to be attributable to (1) skimming, in which HMOs attempt to draw their enrollment from the healthier segments of the population, and (2) skimping, in which utilization of covered services is not encouraged."

According to the report, "There is no clear indication that unit costs (the cost to provide a given item of medical care) are lower in an HMO. However, premiums for HMO-type plans tend to be about 25% higher than those for conventional health insurance."

Recent amendments by Congress to the HMO

Act will reduce the benefits an HMO must provide; legitimize "skimming," by eliminating the open enrollment provision; allow HMOs to charge higher-risk enrollees a higher premium; dilute the "one stop" medical care concept that formerly was the keystone of the HMO, said the report.

Continued the AMA report: "Some tactics of dubious legitimacy have been employed, both to 'sell' the HMO concept to the American people and to enroll individuals in HMOs."

"Everything considered, it seems clear that the American public has been overpromised, where HMOs are concerned. Where an HMO holds costs down, it is apt to be due to reduced utilization and not to health 'maintenance'."

* * * *



NEW MEMBERS

DR. ABED ALSALAM ELKHOJA

Dr. Abed A. Elkhoja has been accepted into the membership of the Craighead-Poinsett County Medical Society. He was born in Rakka, Syria, and received his M.D. degree in 1973 from Aleppo Medical School in Syria. Dr. Elkhoja completed an internship at St. Joseph Hospital in Memphis, Tennessee, and received residency training at the Methodist Hospital, Brooklyn, New York.

Dr. Elkhoja has been in General Practice at the East Arkansas Family Health Center in Lepanto since July 1976.

DR. WILLIAM HOWARD SCHEMEL

The Sebastian County Medical Society has accepted Dr. William H. Schemel into its membership.

Dr. Schemel was born in Alden, New York. He received his B.S. degree from Georgetown

University, Washington, D. C., in 1954, and his M.D. degree from Georgetown School of Medicine in 1958. Following his internship at Mercy Hospital in Buffalo, New York, Dr. Schemel served in the United States Public Health Service for two years. From 1961 until 1963, he was in Anesthesiology residency training at the Veterans Hospital in Buffalo.

Dr. Schemel was associated with Sister's Hospital in Buffalo for fourteen years prior to moving to Fort Smith. He served as Clinical Assistant Professor of Anesthesiology at State University of New York at Buffalo. Dr. Schemel is certified by the American Board of Anesthesiology. His office is at 216-A North Greenwood, Fort Smith.

DR. HAROLD F. WILSON

A new member of the Drew County Medical Society is Dr. Harold F. Wilson. Dr. Wilson was born in Monroe, Louisiana, and upon graduation from high school served in the United States Navy from 1959 to 1965.

He received a B.S. degree from the University of Central Arkansas in Conway in 1969. In 1974, he was graduated from the University of Arkansas College of Medicine, and continued at the Medical Center for his internship and residency training.

Dr. Wilson is a Family Practitioner. He has been associated with the Monticello Medical Clinic since June 1977.

DR. JACK J. STERNBERG

The Pulaski County Medical Society has announced that Dr. Jack J. Sternberg is a new member of that Society.

Dr. Sternberg is a native of Brooklyn, New York, and received his B.A. degree from the State University of New York at Buffalo in 1968. He received his M.D. degree from State University of New York School of Medicine at Buffalo in 1972 and interned at Mount Sinai Hospital, Cleveland, Ohio.

Dr. Sternberg was in Internal Medicine residency training at Mount Sinai Hospital for two years and held a Fellowship in Medical Oncology at M. D. Anderson Hospital, Houston, Texas. He held a teaching appointment at the University of Texas Medical School in Houston. He is certified by the American Board of Internal Medicine.

Dr. Sternberg specializes in Medical Oncology at 500 South University, Suite 725, Little Rock.

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P E R S O N A L A N D N E W S I T E M S

MAYFLOWER CLINIC OPENS

Mayflower Medical Clinic, a satellite of the Cantrell Medical Clinic in Little Rock, has opened in Mayflower. Dr. Edwin N. Barron of Little Rock will practice at the Mayflower Clinic five mornings a week.

DR. BRIDGES SERVES BALD KNOB

Dr. Olen W. Bridges of Searcy is practicing four hours each day in Bald Knob at the former office of Dr. T. L. Adair. Dr. Adair retired in August.

DRS. ROSS AND DOBBS TO CONWAY

Drs. Rex Ross and John W. Dobbs, both Family Physicians, are now in practice at their new clinic on Highway 60 West in Conway. They practiced in Searcy four years prior to moving to Conway.

NEW ENDOSCOPIC OFFICERS

New officers of the Arkansas-Oklahoma Endoscopic Society for 1977-78 are: Dr. Charles H. Paris, Fort Smith, President; Dr. David James, Tulsa, Oklahoma, Vice President; Dr. Douglas Smart, Little Rock, Secretary; and Dr. Malcolm Robinson, Oklahoma City, Oklahoma, Treasurer.

DR. DOUGLAS SMITH RELOCATES

Dr. Douglas Smith has joined Drs. Orman W. Simmons and James T. Y. Kwee in the practice of Obstetrics and Gynecology at 310 Doctors Park Building in Little Rock. Dr. Smith formerly practiced in Fort Smith.



DR. GARDNER RECEIVES RECOGNITION

Dr. Ellis Gardner of Russellville has been inducted into Arkansas Tech University's Hall of

Distinction. Dr. Gardner served on the Tech Board of Trustees, and is a past-president of the Tech Alumni Association. He has been a member of the Arkansas Board of Education since 1965. Dr. Gardner was graduated from Arkansas Tech in 1933.

DR. WILSON HAS NEW ASSOCIATE

Dr. James Wilson has announced the association of Dr. John Douglas in the practice of Cardiology at 500 South University in Little Rock.

TWO ADDITIONS TO ST. JOSEPH STAFF

Drs. Thomas R. Wallace and Robert W. Aspell have been added to the staff of St. Joseph's Mercy

Medical Center in Hot Springs. Dr. Wallace is an Ophthalmologist and Dr. Aspell is a Urologist.

DR. McDANIEL JOINS STAFF

Dr. Robert C. McDaniel has joined the staff of the University of Arkansas for Medical Sciences. He is Assistant Professor of Pathology at the College of Medicine; Associate Professor and Chairman of the Medical Technology Department of the College of Health Related Professions; and Director of clinical laboratories and blood bank at University Hospital.

Dr. McDaniel was previously director of laboratories at the Snodgrass Laboratory in St. Louis, Missouri.



O B I T U A R Y

ROBERT HOMER WHITEHEAD, SR., M.D.

Dr. R. H. Whitehead, Sr., died at the age of ninety-two on September 17, 1977. He was born in 1885 at Tichnor, Arkansas, and he received his M.D. degree from St. Louis University School of Medicine in Missouri in 1915. Prior to entering the medical profession, he was a teacher. Dr. Whitehead was a general practitioner and had practiced in the DeWitt area for sixty-one years. A wing of the DeWitt City Hospital is named in his honor.

Dr. Whitehead was a life member of the Society, and a member of the Society's Fifty Year Club. He was a member of the official board of the DeWitt First United Methodist Church, where he taught the men's Bible Class for over forty years. He was also a member of the Rotary Club and the Masonic Lodge.

He is survived by his wife, Mrs. Lu Ola Hinman Whitehead; a son, Dr. R. H. Whitehead, Jr., of Little Rock; and a daughter, Mrs. Courtney Langston of Little Rock.

ROBERT H. HOOD, M.D.

Dr. Robert H. Hood, formerly of Russellville, died on September 9, 1977, at Tyler, Texas, where he had resided since 1970.

Dr. Hood was a 1927 graduate of the University of Arkansas School of Medicine and he interned at the Missouri Pacific Hospital in Little Rock. He practiced in Russellville from 1928 until 1954. Dr. Hood had served as chief of staff at St. Mary's Hospital, as president of the Pope-Yell County Medical Society, and as a member of the State Board of Medical Examiners.

He was a former member of the Russellville School Board and Arkansas Tech University board of trustees. Dr. Hood served as president of the Pope County Welfare Board from 1938 until 1948 and he was a past district chief of the Arkansas Lions Club.

Dr. Hood had been a member of the medical staff at the State Hospital in Little Rock and Benton.

He is survived by his wife, Mrs. Helen Bice Hood; and a son, Robert W. Hood of Tyler.

WILLIAM K. HILL, M.D.

Dr. William K. Hill of Elaine died September 25, 1977, at the age of fifty-one. He had practiced in Elaine for over twenty years.

Dr. Hill was born in Greenville, Mississippi, on May 20, 1926. He was a 1951 graduate of the University of Tennessee Medical School in Memphis.

Dr. Hill was a member of the Phillips County and Arkansas Medical Societies. He was a veteran of World War II and a member of the Elaine Methodist Church.

Dr. Hill is survived by his widow, Mrs. Ann Hill, three daughters, and one son.

LEROY E. ELLISON, M.D.

Dr. Leroy E. Ellison of Warren died July 23, 1977. He was born March 17, 1896, in Vermont, Illinois. Dr. Ellison served in the United States Army during World War I as a First Aid Corpsman. After his discharge from the Army, he entered Illinois College at Jacksonville and received his A.B. degree in 1921. He received his medical degree from Washington University in St. Louis, Missouri, in 1925, and he interned at the St. Louis Hospital and the Missouri State Hospital in Fulton.

Dr. Ellison practiced in Maplewood, Missouri,

prior to locating in Warren. He came to Warren to assist in the care of patients during a flu epidemic, and he remained there over ten years. He returned to St. Louis, Missouri, where he practiced until his retirement in 1969. Upon retirement, he returned to Warren.

Dr. Ellison received recognition from Presidents Roosevelt and Truman for his loyal services to the government during World War II.

Dr. Ellison is survived by his widow, Mrs. Rose King of Warren, and one son, Robert Lee Ellison, Birdsboro, Pennsylvania.

* * * *



THINGS TO COME



GRADUATE MEDICAL ASSEMBLY

The Forty-first Annual New Orleans Graduate Medical Assembly will be held March 31st through April 4, 1978. The theme for the meeting is "The High Risk Patient." The meeting is accredited by the American Medical Association (Category I) and by the American Academy of Family Physicians.

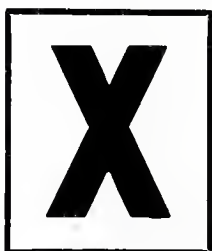
Registration fee is \$200 for non-members. Complimentary registration for students, residents, interns, and fellows.

For further information contact: New Orleans Graduate Medical Assembly, Room 1538, Tulane Medical Center, 1430 Tulane Avenue, New Orleans, Louisiana 70112, phone (504) 525-9930.

* * * *



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If your practice is incorporated, Ark-Pac and Am-Pac voluntary political contributions should be written on a PERSONAL CHECK. Contributions are not limited to the suggested amount. Neither the AMA nor the Arkansas Medical Society will favor or disadvantage anyone based upon the amounts of or failure to make PAC contributions. Copies of Ark-Pac and Am-Pac reports are filed with the Federal Election Commission and are available for purchase from the Federal Election Commission, Washington, D. C. Contributions are subject to the limitations of FEC Regulations, Sections 110.1, 110.2 and 110.5. (Federal regulations require this notice.)

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FORT SMITH, ARKANSAS

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Valium (diazepam) is a benzodiazepine with a character all its own.

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But the individual character of Valium is even more apparent clinically than pharmacokinetically. And far more significant. That's because of the patient response obtained with Valium. A response which brings a calmer frame of mind. A response which has a pronounced effect on the somatic symptoms of anxiety, particularly muscular tension. A response which helps the patient feel more like himself again because of the way Valium reduces the overwhelming symptoms of anxiety and psychic tension.

Another important aspect of the clinical character of Valium is safety. Though drowsiness, ataxia and fatigue are possible, these and more serious side effects are rarely a problem. Of course, as with all CNS-acting drugs, patients taking Valium should be cautioned against driving, operating dangerous machinery or the simultaneous ingestion of alcohol.

Unquestionably, many psychotherapeutic agents, including other benzodiazepines, have antianxiety effects. But one fact remains: you get a certain kind of patient response with Valium. It's a response you want. A response you know. A response you trust as part of your overall management of anxiety and psychic tension.

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Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders; athetosis; stiff-man syndrome; convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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Hormonal Contraception: Perspectives

Part Two. Special Techniques

Gary P. Wood, M.D.*

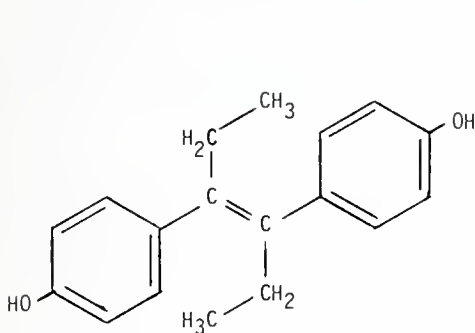
In the last few years a number of methods of contraceptions have been developed which utilize hormones and which are based on different concepts than the traditional oral contraceptives. There are also several methods of hormonal contraceptions which are still in the developmental stage and, even though some of these methods are not clinically practical at the present time, the basic concepts are sound and further work may result in valuable additions to our clinical armamentarium.

I. Post coital contraceptions (The "morning after" pill)

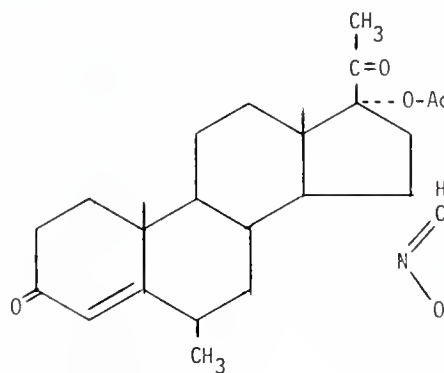
The concept of post coital hormonal contraception or "interception" was suggested in 1966 and has proven to be very effective if properly

administered.¹ The only hormone which is currently approved for this use is diethylstilbestrol (DES) (Figure 1) but studies are underway to evaluate the effectiveness of conjugated estrogens and ethinyl estradiol for this use. The regimen must be begun within 72 hours after intercourse and consist of DES, 25 mg, twice daily for five days. About half of the women receiving this course of therapy will experience significant nausea and they should have ready access to antiemetics. Failure rates for this therapy are difficult to determine since, obviously, the pregnancy rate would not be 100% even if no therapy was used. Using the best information available, the pregnancy rate with this therapy is estimated to be 0.04%.

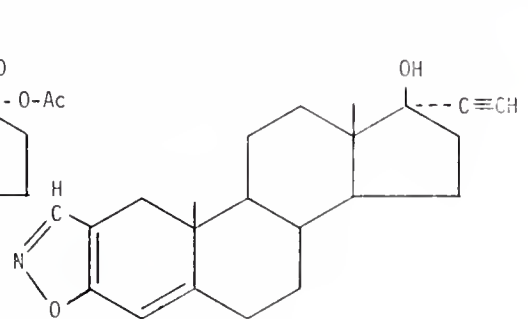
The major potential hazard of estrogen therapy used in this fashion is the subsequent de-



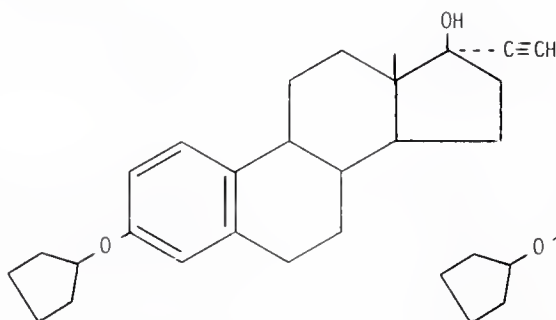
DIETHYLSTILBESTROL



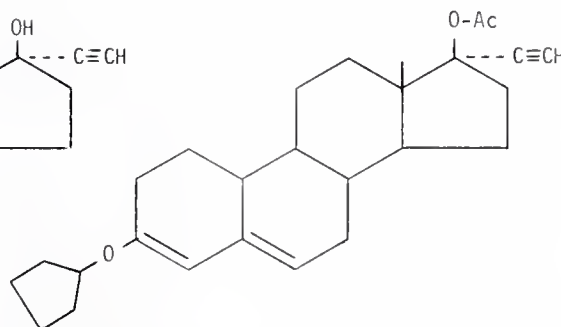
MEDROXYPROGESTERONE ACETATE



DANAZOL



QUINESTROL



QUINGESTANOL ACETATE

*Department of Obstetrics and Gynecology, University of Arkansas College of Medicine, Little Rock, Arkansas 72201.

velopment of vaginal carcinoma in female children who are exposed to estrogens during the early part of the pregnancy in which they are conceived. Because of this threat it is suggested that women who become pregnant in spite of "interception" therapy strongly consider therapeutic abortion. It must be emphasized that, at this time, we have no evidence to indicate that the use of estrogens other than DES will reduce this risk.

II. Injectable contraceptives

Attempts at developing an injectable estrogen and/or progestin contraceptive which could be given on a monthly basis and would allow cyclic withdrawal bleeding have been successful in terms of contraception but unsuccessful in that bleeding often becomes erratic with the development of a polymenorrhea pattern.

The only injectable agent which is currently approved for contraceptive use is medroxyprogesterone acetate* (Figure 1) and it is approved for use only if conventional agents are not acceptable. Therapy consists of 150 mg. every three months and will result in excellent contraception and usually amenorrhea.^{2,3} A minor problem associated with this therapy is intermittent spotting which may result from the marked endometrial epithelial atrophy which occurs. If troublesome enough to warrant therapy, this spotting may be controlled by the administration of an oral estrogen daily for seven days (i.e. conjugated estrogen, 0.625 mg. daily). This may be repeated on a monthly basis if necessary. The most significant potential problem associated with the long term use of injectable medroxyprogesterone acetate is the prolonged cessation of ovulation which may occur even after the injections have been discontinued. Anovulation for as long as two years after the last injection is possible and consequently, this form of contraception is not advisable for women who desire more pregnancies.

III. Implants

Subcutaneous implantations of pellets containing either estrogen or testosterone or combinations of estrogen and progestin may inhibit ovulation. The problems associated with this form of contraception are many. Both estrogen and testosterone may result in significant side effects with amounts necessary to inhibit ovulation: estrogen in the form of erratic and heavy uterine bleeding and testosterone in the form of hirsut-

ism, acne and virilization. Combination estrogen/progestin pellets also offer the problem of erratic bleeding patterns. The most significant disadvantage to the implantable pellet form of hormone delivery is that it is a surgical procedure which requires physician administration. These factors make it undesirable for most women and too time consuming for any mass contraception program.

An interesting adaption is the use of progesterone bearing intrauterine devices (IUD's)** which release progesterone directly into the uterine cavity. With this system, the effect is more local than systemic since ovulation usually continues. While this may develop into an effective means of contraception, the high initial cost and the required yearly replacement make it little more than a curiosity at the present time. It offers no apparent advantages over other currently available IUD's.

Other progestins, including norgestrel and medroxyprogesterone acetate, have also been utilized for IUD delivery systems. We have no reason to believe that the problems related to these IUD's are a result of the specific progestin used but are a result of problems inherent to this type delivery system.

IV. "Once-a-month" pill

Quinestrol, an estrogen, and quingestanol, a progestin (Figure 1) have been studied as a "one-pill-per-month" oral contraceptive. Storage in fat depots and subsequent release accounts for the prolonged action of these compounds. For this regimen, the patient is given 2 mg. of quinestrol on the first day of the menstrual cycle which is followed in three weeks with 2 mg. of quinestrol and 5 mg. of quingestanol. This combination is repeated every four weeks irrespective of the timing of withdrawal bleeding.⁴ Erratic breakthrough bleeding and prolonged menses are significant problems with this regimen and, since ovulation is not uniformly suppressed, the pregnancy rate is somewhat higher than for conventional OC's. These hormones have not been approved for use in this country.

V. Danazol

Danazol* is a 2,3-isozyl derivative of 17 ethinyl testosterone (Figure 1) which acts by inhibiting gonadotropin production and release with this

**Progesasert®.

*Danocrine® — Sterling — Winthrop Laboratories, Rensselaer, New York.

*Depro-Provera.

effect being more pronounced for follicle stimulating hormone (FSH).⁵ This suppression of FSH very effectively inhibits follicular maturation and, at a dosage level of 200 mg. daily, contraception is very effective. Because of the lack of estrogen production, women under treatment with danazol are usually amenorrheic. As a result of its mild androgenic effect, side effects with danazol include weight gain, acne and hirsutism which are usually reversible if therapy is discontinued at the time they are first noticed. At the present time the only approved use for danazol is the treatment of endometriosis and further studies are indicated before this role as a contraceptive for women or men can be determined. The high cost of this drug would preclude its use at the present time.

Discussion

In spite of the multitude of contraceptive agents available, the ideal contraceptive still eludes us. The criteria which must be met by the ideal contraceptive are that it must be:

1. 100% effective
2. Safe and without side effects
2. Simple enough to be used effectively by those with minimal education and/or intelligence
4. Inexpensive
5. Completely and rapidly reversible
6. Removed from the act of intercourse
7. Easily distributed and accessible to all.

While there are many contraceptives which meet several of these requirements, none satisfy

all criteria. In fact, it seems that the most effective methods which are least associated with the act of intercourse also have the most significant side effects.

In spite of the wide variety of hormonal contraceptive techniques available, there is still a significant segment of the population for whom hormonal contraception is ill-advised or even contraindicated. These would include those women with diabetes mellitus, cardiovascular disease, or the presence of venous varicosities and a history of thrombophlebitis and thromboembolic phenomena. Ironically, this includes those women with the greatest need to avoid pregnancy from the most effective forms of contraception.

Even though there are many techniques available for hormonal contraception and many different needs can be met, the significant side effects and use restrictions indicate that the full potential of these techniques is yet to be realized.

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The Role of Profundaplasty in Revascularization of the Lower Extremity*

Bernard W. Thompson, M.D., F.A.C.S.** and Raymond C. Read, M.D., F.A.C.S.***

Arteriosclerotic peripheral vascular disease, particularly affecting the legs, continues to be one of the most challenging problems faced by the vascular surgeon. Although many operative procedures have been developed to increase blood flow to the lower extremity, patients continue to require amputation. Recent experimental evidence by King and Royle¹ has shown that stitching or other trauma to an artery causes exaggerated atheroma at the operative site. It would, therefore, seem reasonable that some procedures, whether femoropopliteal vein bypass or thromboendarterectomy may well hasten rather than retard the development of gangrene. When the superficial femoral and popliteal arteries are obstructed, the profunda femoris is the primary source of blood flow to the thigh and the major collateral route for supply to the knee and the lower part of the leg. Thanks to the pioneering work of Leeds and Gilfillan,² along with Morris et al,³ a newer procedure is available in these patients. Profundaplasty has more recently been popularized by Waibel,⁴ Billig et al,⁵ Bernhard et al,⁶ and particularly Martin.⁷⁻¹⁰ The purpose of this report is to document our recent favorable experience with this operation in the treatment of arteriosclerotic vascular insufficiency of the lower extremity in 77 patients.

Anatomy

The profunda femoris artery usually arises from the posteriolateral aspect of the common femoral, though sometimes from the posterior or medial aspect. Its caliber at the origin is less than that of the superficial femoral artery. It passes inferiorly amid the adductor muscles and ends by piercing the adductor magnus to anastomose with the upper muscular branches of the popliteal artery. The first two branches are the lateral and medial circumflex either of which

may arise from the common femoral. At its origin the profunda-femoris artery is crossed anteriorly by from one to five venous tributaries which then enter the common femoral vein (Figure 1). The perforating branches of the artery give off branches which join with each other in front of and behind the femur thus forming a double chain of anastomosing vessels. As the first perforating branch anastomoses above with the gluteal, obturator and femoral circumflex arteries, and the termination of the profunda or fourth perforating artery, with the muscular branches of the popliteal and tibial recurrent arteries, this important chain of anastomoses which extends from the gluteal arteries above to the popliteal and tibial muscular branches below is reinforced by the local supply from the profunda-femoris artery (Figure 2). When the femoropopliteal artery is occluded, the profunda-femoris artery enlarges and the collateral may be so effective that the occlusion may pass unnoticed by the patient.

METHODS AND MATERIAL

Surgery for arteriosclerotic obstruction of the profunda-femoris artery has been performed on 103 limbs in 77 men aged 45-84 years (average 63). In 81 instances no previous surgery had been done (primary) while in the remaining 22 previous aortofemoral, femoropopliteal grafting or thromboendarterectomy performed six months to

ANATOMY OF PROFUNDA FEMORIS

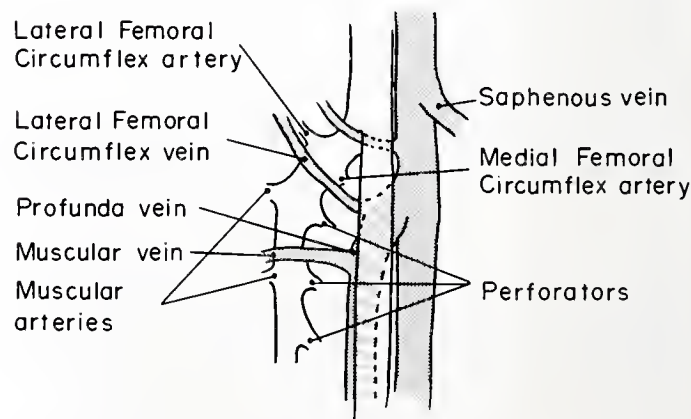


FIGURE 1.

The femoral artery system in the groin. Numerous venous tributaries pass anterior to the profunda femoris.

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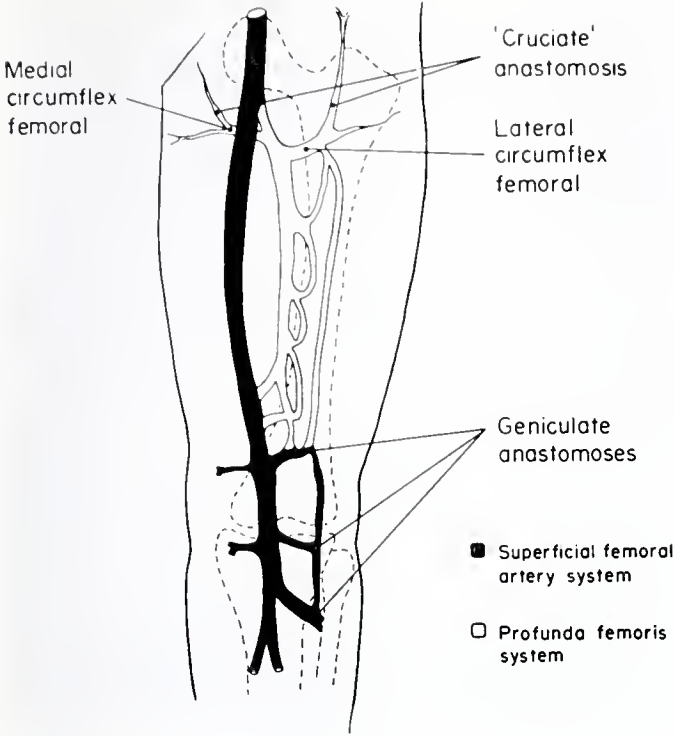


FIGURE 2.

Diagram of the profunda femoris artery showing sites of anastomosis with the distal superficial femoral and popliteal artery.

eight years previously, had failed to control ischemia and relieve pain (secondary). Indications for operation were incapacitating claudication in 70, rest pain in 20, gangrene of at least one toe in 8, and ischemic ulceration in 5 (Table 1).

TABLE 1 INDICATION FOR SURGERY IN 77 PATIENTS	
	No. of Limbs
Incapacitating Claudication	70
Rest Pain	20
Gangrene Toe	8
Ischemic Ulcer	5
	103 Limbs

In addition to the standard clinical evaluation which included arteriographic visualization of the aortoiliac and femoropopliteal segments, two types of perfusion indices were obtained to evaluate blood flow to the leg and calf. Forty-two patients had radionuclide studies both prior to and after surgery using a modification of a technique described by Gerritsen.¹¹ Using this method the patient lies supine with the gamma camera detectors placed under the gastrocnemius muscle group. Blood pressure thigh cuffs are placed around the upper thighs and inflated to 50-100 mm of mercury above the patient's recorded systolic blood pressure for five minutes. During this ischemic interval the patient is instructed to exercise his ankle against the foot rail of the imaging couch for at least two minutes. This insures maximal hyperemic. If significant pain develops the isotope (Technetium 99 m pertechnetate 8.0 mCi in less than 2.0 ml volume) is injected into the antecubital vein and the pressure cuffs released simultaneously. If pain does not develop, the isotope and the cuff release are performed simultaneously after a five minute ischemic period (Figure 3). The radionuclide arrival and flow distribution is monitored on an oscilloscope and recorded on 8 x 10 X-ray film at two-second intervals. Additional recording of the activity distribution is carried out utilizing a G.E. Med II computer for later curve analysis. Recording time is limited to 60 seconds for technical reasons with the curves obtained extrapolated to 99 seconds. This allows direct comparison with the results of Gerritsen's¹¹ groups. Replaying the recorded activity distribution on an oscilloscope allows for selection of an area of interest over

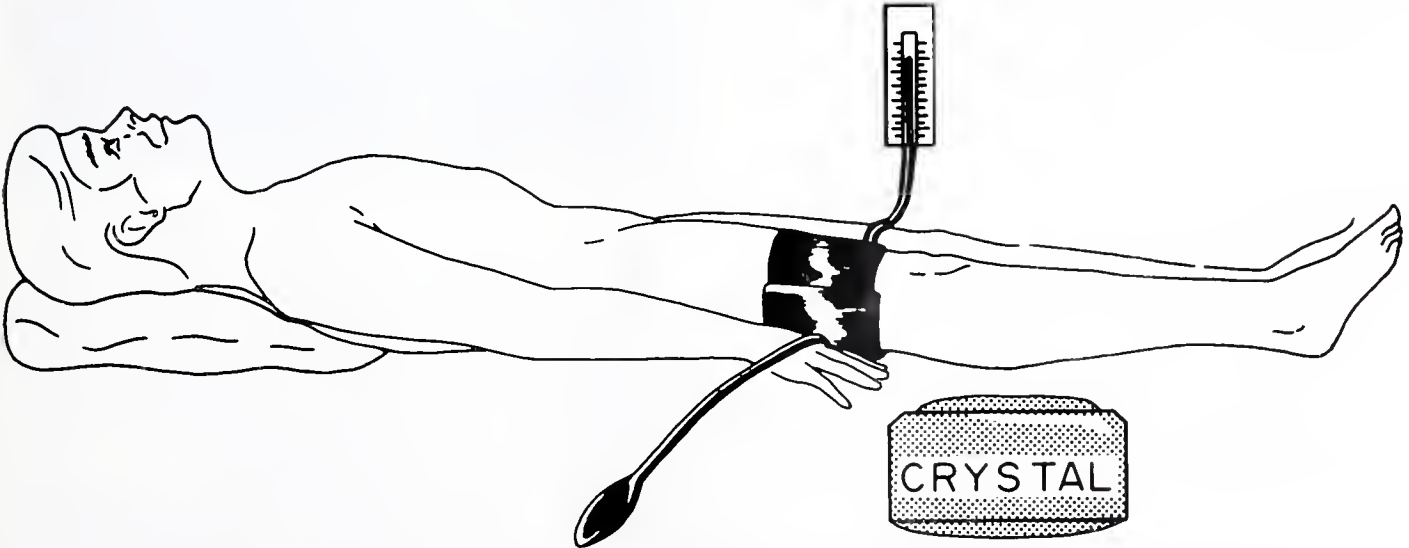


FIGURE 3.

Patient lies on back with gamma camera detector under calves. Conical thigh cuffs are connected to mercury manometer.

each gastrocnemius muscle. The entire sequence is then replayed from start of injection to completion of study. A time versus activity curve (histogram) is generated reflecting distribution of radioactivity in these areas of interest over a period of time. This curve is displayed on an oscilloscope screen with a Polaroid camera providing a permanent record.

Curve Configuration and Physiological Significance

An initial upswing of the curve from the baseline represents the initial appearance (t_a) of radionuclide in the detector area. The portion of the curve from (t_a) to the peak (t_{max}) represents activity (i.e. blood) flow through patent main vessels to the dilated vascular bed of the gastrocnemius muscles. The plateau portion represents equilibration of the intra and extravascular activity of a diffusible radionuclide. Kety¹² has stated that effectiveness of circulation is best measured by its total ability to supply freely diffusible substances. These curve patterns can be mathematically analyzed to provide a parameter that has been termed the perfusion index (PI). The ratio of the peak counts to the plateau counts at equilibrium (99 secs.) determines the perfusion index (Figure 4).

An abnormal curve (absence of the peak and rise in activity) indicates an abnormal transport capacity and mixing of the activity. Since the peak is not defined in the abnormal curve, an extrapolated reference point is determined (t_{max}) for calculating the pathological perfusion index value in patients with occlusive disease (Figure 4).

In 30 of these 42 patients Doppler flow indices were also determined prior to and following reconstructive vascular surgery. Systolic arterial pressures is first obtained in the upper extremity

using an ultrasonic Doppler flow detector and a standard sphygmomanometer. Ultrasonic examination is then performed, with the patient supine and a sphygmomanometer positioned over the calf, ankle systolic blood pressure at rest is determined at the posterior tibial and dorsalis pedis arteries. The Doppler pressure index is derived by comparing the systolic pressure of the lower extremity with that of the upper extremity and is expressed as a percent

$$(DPI = \frac{\text{Ankle BP}}{\text{Systemic Bp}}) \cdot 100^{13,14}$$

The type of operative procedure performed in association with profundoplasty depended on the status of the inflow to the common femoral artery, the degree of involvement of the profunda, and the status of the runoff. In 68 limbs (66.0%) a procedure to augment inflow to the common femoral artery was performed in addition to profundoplasty: Aortofemoral bypass in 67 and femoro-femoral in one. Profundoplasty alone was carried out 33 times (32.0%). The luminal size was enlarged by use of an autogenous superficial femoral artery patch in 25, an autogenous saphenous vein in seven and in one instance a piece of Dacron graft was used. A femoropopliteal bypass to supplement profunda reconstruction was used twice (2.0%).

RESULTS

A correct diagnosis of compromise in the profunda-femoris was made in an antero-posterior arteriogram in 34 (33.0%) of the limbs. Recently, in addition we have obtained oblique arteriograms as recommended by Beales¹⁵ in 26 limbs and a correct diagnosis was made in 20 instances (76.9%) (Figures 5A and 5B). In the remaining 49 (47.6%) the occlusions were found only at surgery. At operation atheromatous plaques were found along the posterior wall of the common femoral and extending to the first branch of the profunda-femoris in 53 (48.6%); the profunda was occluded from its orifice to the first branch in 17 (15.6%); the atheromatous disease extended beyond the first branch in 19 (17.5%) and segmental disease beyond the first branch was found in 14 (12.8%). An additional 6 (5.5%) of those explored had such extensive disease that a profundoplasty could not be performed as the obstruction was too long (Figure 6).

Of the 70 limbs treated by profundoplasty plus other operative procedures, 54 had claudication, 9 rest pain, 4 gangrene of a toe, and 3 an

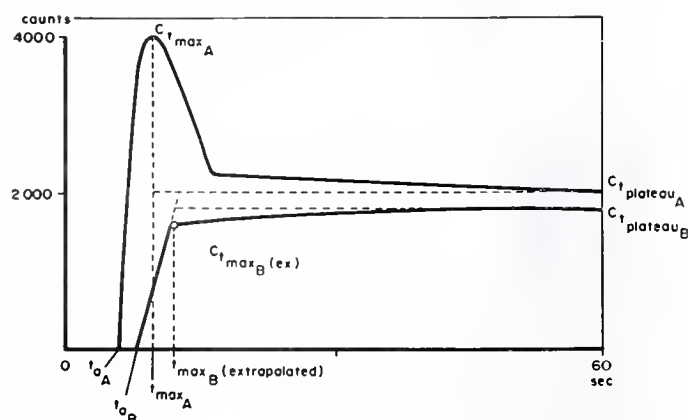


FIGURE 4.

Diagrammatic explanation of the normal (A) and the pathological (B) curve analysis. Note the extrapolated t_{max} and the C_{tmax} on the pathological curve and that it is ascending.

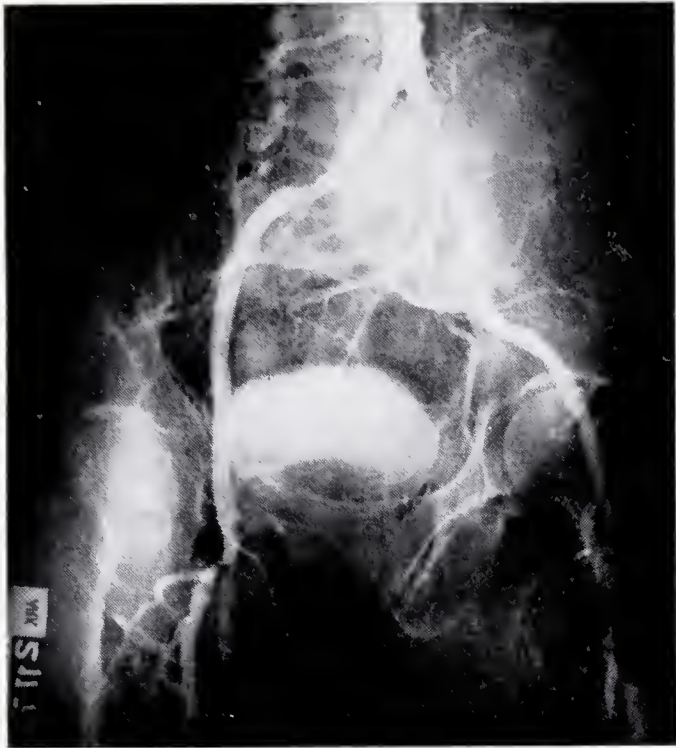


FIGURE 5A.
AP arteriogram with partial occlusion both common iliac arteries. Profunda femoris origins lie directly behind the superficial femoral making evaluation difficult.



FIGURE 5B.
Oblique arteriogram of same patient. Near total occlusion right Profunda femoris at its origin.

ischemic ulcer. There were three operative deaths in this group (5.8%). One had a myocardial infarct and died on the fifth postoperative day, a second developed gangrene of the colon and died on the tenth postoperative day despite colon resection, while the third had a pulmonary embolus and died three weeks following operation. A fourth patient was admitted to the hospital some eight weeks following operation with symptoms of a small bowel obstruction.

5 TYPES OF OCCLUSION OF THE PROFUNDA FEMORIS

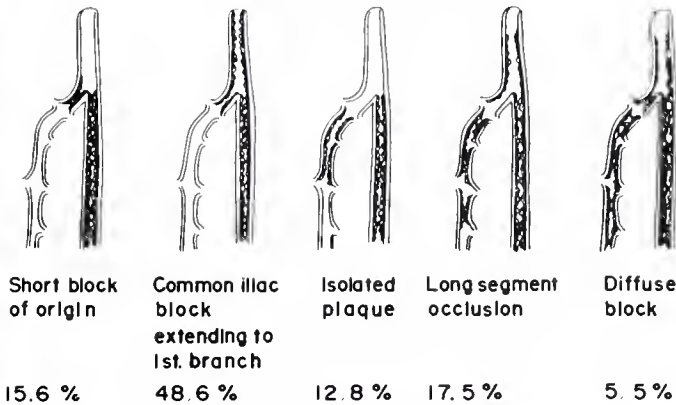


FIGURE 6.
Various types of blocks of the profunda femoris arteries.

He died suddenly and at autopsy was also found to have a pulmonary embolus. Of the remaining 52 who were operated for claudication 48 are improved. One returned at 16 months with progressive vascular insufficiency and a below-knee amputation was carried out. Three others failed to show improvement and at three, five, and seven months autogenous saphenous vein femoropopliteal bypasses were carried out. All three are improved at the present time. The three survivors with gangrene have had amputation of the involved toe and are ambulatory. The three ischemic ulcers have healed. Six of the eight survivors with rest pain are able to walk with some difficulty but two continued to have severe pain, their legs were amputated below the knee two and three months after the initial operation (Table 2).

There were no deaths in the 33 where profundaplasty alone was carried out. Of the 16

TABLE 2
RESULTS OF OPERATION

	No. of Limbs
Profundaplasty plus other vascular reconstruction	70
Deaths	
Operative	3 (5.8%)
Late	1 (1.9%)
Claudication	52
Improved	48
Required additional reconstruction	3
Amputation	1
Rest Pain	8
Improved	6
Amputation	2
Gangrene — Ambulatory	3
Ischemic Ulcers — Healed	3

with claudication 14 are improved while two continue to have cramping pain on ambulation although their legs remain viable. Five of the eleven with rest pain continued to have severe pain necessitating below-knee amputations from one to three months following initial operation. The two ischemic ulcers have healed and the four with gangrenous toes have had amputations of these but their limbs are otherwise viable (Table 3).

The radionuclide flow studies as well as the Doppler pressure indices correlated well with the physical and arteriographic studies. With an occluded iliac, femoral or popliteal artery, the Tc99m perfusion index ranged from 0.2 to 1.1 (average 0.4) while the Doppler pressure index ranged from 0-70% (average 35%). The perfusion index in the "normal" leg varied from 1.4 to 2.8 and the Doppler pressure index from 80-120%. Following profundaplasty alone there

TABLE 3
RESULTS OF OPERATION

	<i>No. of Limbs</i>
Profundaplasty only	33
Claudication	16
Improved	14
Unchanged	2
Rest Pain	11
Improved	6
Amputation	5
Gangrene — Ambulatory	4
Ischemic Ulcer Healed	2

was an average increase in the perfusion index of 0.3 and the Doppler pressure index of 25. In four instances there was no evidence of an increase in flow to the calf as measured by either

index and in none did either of the indices rise to normal. Despite the failure to show increase in flow as measured by these two parameters, two patients had healing of ischemic ulcers. Following profundaplasty with a proximal reconstruction in those with occluded superficial femoral artery the perfusion index rose an average 0.5 (again ranging from no change to one instance where it rose from 0.9 to 2.4). Likewise in this group the Doppler pressure index rose an average of 38, ranging from no change to one instance where it rose from 40 to 100. In six patients (12 extremities) where the superficial femoral artery was patent both the perfusion and pressure indices rose to normal levels when aortofemoral bypass accompanied profundaplasty (Tables 4 and 5).

COMMENTS

Profundaplasty can be carried out under local anesthesia with a minimal risk to the patient. For this reason it is particularly applicable to the aged with advanced disease. However, we failed to save the extremity in 5 of 33 and another two have severe claudication. Fifteen of these were too poor a surgical candidate to have an extensive procedure, the popliteal was considered inadequate for a bypass procedure in 13 and occlusion of the profunda was the only lesion present in five. When proximal augmentation was used (aortofemoral Y graft, femorofemoral bypass or aortoiliac endarterectomy) general anesthesia is required. These proximal bypass procedures when added to profundaplasty, increase the amount of blood delivered to the calf but add to the operative morbidity and mortality (5.8%). Despite the apparent good results three of these have had to have femoropopliteal grafts during

TABLE 4
TECHNETIUM PERFUSION INDEX

<i>No. Limbs</i>		<i>P. I.</i>	
42	Occluded	0.2 - 1.1	
		Ave. 0.4	
10	Normal	1.4 - 2.8	
		Ave. 2.0	
<i>No. Limbs</i>	<i>Procedure</i>	<i>Pre. Op.</i>	<i>Post. Op.</i>
8	Profundaplasty only	0.2 - 0.9	0.2 - 1.2
		Avg. 0.4	Avg. 0.7
22	Proximal reconstruction and profundaplasty (Superficial femoral occluded)	0.4 - 1.2	0.6 - 2.4
		Avg. 0.6	Avg. 1.1
12	Proximal reconstruction and profundaplasty (Superficial femoral patent)	0.5 - 1.4	1.6 - 2.6
		Avg. 0.8	Avg. 2.0

TABLE 5
DOPPLER PRESSURE INDEX

<i>No. Limbs</i>		<i>DPI (%)</i>	
30	Occluded	0 - 70	
		Avg. 35	
30	Normal	80 - 120	
		Avg. 100	
<i>No. Limbs</i>	<i>Procedure</i>	<i>Pre. Op.</i>	<i>Post. Op.</i>
6	Profundaplasty only	10 - 50	10 - 70
		Avg. 24	Avg. 49
12	Proximal reconstruction and profundaplasty (Superficial femoral occluded)	30 - 68	30 - 100
		Avg. 40	Avg. 78
12	Proximal reconstruction and profundaplasty (Superficial femoral patent)	30 - 67	80 - 110
		Avg. 43	Avg. 95

the postoperative period to alleviate symptoms of vascular insufficiency. As has recently been shown, femoropopliteal bypass and endarterectomy alone yield poor results over the long term. Twenty-five percent failed at one year and 50% by three years.⁸ Many are too sick for extensive surgical procedures and in others the popliteal artery is of too poor quality to accept a bypass graft. It would seem logical to advise profunda-plasty as a primary operation in many of these elderly with ischemia due to occlusion of the superficial femoral artery, if not as the only procedure, then at least as an adjunct to other techniques now used to increase blood flow to the leg and foot.

We have found that this procedure is not only of value in a primary situation but should be considered as a secondary operation when other techniques have failed to relieve ischemic symptoms. Profundaplasty has been used on 22 occasions when ischemic signs and symptoms developed six months to eight years following endarterectomy or bypass procedure. Except for amputation of two gangrenous toes there have been no loss of tissue in any of these.

Routine lateral or oblique arteriograms of the femoral system as have been advised by Beales¹⁵ and others were not available early in the study. Recently, with the use of these views the radiographic accuracy has risen from 33% to 79%. The inaccuracy of arteriography in addition to the findings of Bartos et al,¹⁶ Beales et al,¹⁵ and Knox¹⁷ that approximately 50% of patients with claudication operated for aortoiliac disease have arteriosclerotic changes in the deep femoral artery which is the most common cause for late

failure of aortoiliac reconstruction, has led us to advocate aortofemoral bypass with complete examination of the profunda-femoris artery, a procedure previously advised by Moore et al,¹⁸ as well as Knox.¹⁷ We agree with them and have not noted a high rate of kinking of the grafts, false aneurysm or wound infection when the limbs are brought below the inguinal ligaments.

In the past mere osteal widening or transfemoral "unplugging," has been advised for stenosis of the deep femoral artery. One is rarely able to adequately clean the profunda to its first branch using this technique and frequently an intimal flap will be left distally which will eventually lead to thrombosis. This technique would certainly be an inadequate approach in 30% of our patients where the disease either extended beyond the first branch of the profunda or presented as an isolated block extending from the first branch distally. Although we have found that a 3 cm incision in the profunda is usually adequate, on several occasions the profunda was opened for a distance of 15 cm.

It is not surprising that the pressure and flow indices did not show normal flow to the calf after either profundaplasty or profundaplasty and proximal bypass procedure when the superficial femoral was occluded. The profunda-femoris is mainly the artery of supply to the thigh muscles and only secondarily through distal collaterals is it an alternative to blood flow to the leg when the superficial femoral artery is occluded. Strandness¹⁹ has previously shown that when the superficial femoral artery is occluded ankle blood pressure after profunda revascularization is rarely normal but there is some increase over the

preoperative level and the symptoms are usually relieved. Likewise, in our study we have had healing of leg ulcers and symptomatic improvement with little if any improvement in flow and pressure indices. Only with a patent superficial femoral artery was there a return of normal calf flow as shown by these indices. We found the use of technetium 99m-pertechnetate to measure flow to the calf to be of value as an atraumatic screening technique prior to arteriography for post-operative evaluation of corrective surgery and for long term follow-up. The Doppler pressure index gives the same information, is more readily obtainable and much cheaper and therefore a more practical method of evaluating these patients.

In conclusion, profundaplasty appears to be an important adjunct to present techniques used to revascularize the leg and foot in those with arteriosclerotic vascular disease of the lower extremities.

SUMMARY

Profundaplasty has been performed on 103 limbs (81 primary and 22 secondary) in 77 men. Seventy of these had incapacitating claudication, 20 rest pain, and 13 either gangrene or ischemic ulceration.

In 33 treated by profundaplasty alone there were no deaths, but five subsequently had amputation for ischemic pain. In 70 with profundaplasty plus other operative augmentation there were three (5.8%) operative deaths and one (1.9%) late death. Three required further operative surgery and three later required below knee amputations. The majority of those requiring amputation had long standing disease and rest pain. Oblique arteriograms of the femoral area are essential for evaluation of the profunda femoris artery. Both radionuclide flow and Doppler pressure studies confirmed physical and arteriographic findings. The latter would appear superior because of ease of availability and cost. After profundaplasty alone and profundaplasty plus aortofemoral bypass there was moderate increase in calf blood flow, but only in those with a patent superficial femoral did flow and pressure studies return to normal. Profundaplasty is an important addition to the armamentarium of the vascular surgeon in dealing with arteriosclerotic insufficiency of the lower extremities.

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Office Orthopaedics

Traumatic Myositis Ossificans

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Noble⁶ originally classified myositis ossificans in 1924, and a better classification has not been forthcoming. This condition was divided into three major groups.

- I. Myositis ossificans progressiva. A congenital metabolic disorder of childhood first described in 1692 by Guy Patin. It is an inherited Mendelian dominant manifested by progressive ossification and calcification of fascia, ligaments, aponeuroses and connective tissue of muscle. It usually begins about the neck and shoulders, producing torticollis and progresses to a fatal outcome ultimately. Microdactyly is a prominent feature.
- II. Traumatic myositis ossificans circumscripta. The condition to be discussed in this paper is a result of local trauma. Ossification of muscle and connective tissue occurs in a single localized area. Repetitive occupational injury is included in this category (adductor longus injury in jockeys).
- III. Myositis ossificans circumscripta without a history of trauma. In localized areas, ossification of muscle and connective tissue occurs for reasons unassociated with trauma. Some of these conditions are spinal cord injury and CNS disease (where hips, knees, and thighs are most often involved), tetanus, poliomyelitis and burns.

Clinical

The most common manifestation of localized myositis ossificans occurs in the young adolescent

football player who receives a direct injury to the anterior thigh from a football helmet or knee. This results in a localized hematoma evidenced by swelling, redness, heat, exquisite tenderness and a firm mass. Initially this may be confused with a "charley-horse" and the youngster allowed to resume play. After repeated injury, progressive swelling, tenderness and restriction on knee motion occurs. Jackson et al, classified these injuries by severity.⁴

1. Mild: local swelling and tenderness is present, however, the patient can deep knee bend and 90 degrees or more of motion is present in the knee.
2. Moderate: less than 90 degrees of motion is present, there is an antalgic gait and the patient cannot deep knee bend.
3. Severe: less than 45 degrees range of motion is present and usually there is a severe limp. The patient will use crutches by choice. Effusion of the knee may be present.

The occurrence of ossification in the soft tissues can first be seen by X-ray between two and four weeks. This seems to be a result of not only the extent of the original injury but also the nature of the injured area. Hughston et al,³ found 75 percent of their cases fell between ages 14 and 18 years. They felt that the age of adolescence, associated with growing bone, increased the propensity for bone formation in soft tissue. Reinjury doubled the occurrence rate of myositis ossificans and the length of convalescence. Jackson⁴ found the average time of disability for moderate quadriceps contusion to be 49 days, but

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with reinjury it was extended to 92 days. The average disability in all cases of myositis ossificans in this series was 73 days. In severe cases, however, it was as long as 180 days. After the initial period of debility the ossification process matures and stabilizes. There is gradual resorption, sometimes incomplete, but usually there is no residual functional disability. At times unabsorbed bone may obstruct joint motion and is an indication for late surgery.

Pathophysiology

As a result of a direct blow to the anterior thigh, hemorrhage and hematoma formation occurs in the *vestus intermedius* or *lateralis*. Death of muscle tissue is present. Periosteal stripping from underlying bone and metaplasia of connective tissue and muscle cells to chondrocytes and osteocytes may both occur to start the formation of bone. This process is much like that of a healing fracture, with callus formation, which progresses to full maturation into bone. Ackerman¹ described four zones of tissue microscopically. Within the center of this lesion there is a bizarre undifferentiated zone of pseudosarcomatous appearing cells with atypical mitotic figures. There is a transition in the next two zones to the periphery where there is a mature pattern of new bone formation under a fibrous tissue capsule. As the process matures with time there is a progression inward of a more benign appearing tissue. Early X-rays of the lesion show the more mature appearing bone is present at the periphery. Serial X-rays every two to three weeks will show an inward progression of bone maturity. The lesion which begins as a feathery, immature, sometimes sunburst appearing lesion evolves into mature bone. The extraosseous bone appearing in the soft tissues usually is attached to bone suggesting a periosteal origin. Occasionally, however, no direct attachment to bone is seen, suggesting the *in situ* transformation of mesenchymal cells into osteoblasts.

Differential Diagnosis

Osteogenic sarcoma is the most worrisome lesion to be differentiated, because of its grave prognosis. Usually the history of injury followed by marked swelling, with the X-ray appearance two to three weeks later of a strictly juxtacortical lesion, followed by progressive maturation on serial X-rays will eliminate this confusion. Biopsy of the lesion should be avoided as microscopic

differentiation of the two conditions is difficult and it prolongs the recovery period for myositis ossificans.

A stress fracture of bone may not be seen on the original X-ray. It may become evident only after healing callus is seen about the fracture. Callus is present about the circumference of the bone and is located more subperiosteal. Also a small lucency may be seen at the fracture site as initial resorption of bone at the fracture site occurs.

Osteomyelitis is evidenced by pain, swelling and local reaction. X-rays show periosteal new bone formation within the first 10 to 14 days if the lesion is allowed to progress. Laboratory work may be helpful in differentiation of these two lesions. In myositis ossificans rarely is there any abnormality where as in osteomyelitis there is an elevated sed. rate and white count with a shift to the left.

Perostitis is seen in several diseases but is usually not confused with myositis ossificans due to the clear cut history of trauma present in the latter.

Treatment

Rest is the mainstay of initial treatment. Ice, elevation, local pressure dressing and crutch walking are indicated. Early weight bearing may prevent resorption and healing.⁴ Splints and casts have also been recommended for complete immobilization and rest. After the local reaction subsides in the first few days, quad setting exercises are begun to initiate the second phase of treatment. Restoration of strong extension of the knee is important at this time. Flexion is usually limited by the injury itself and any attempt at manipulation or massage should be absolutely avoided. Avoidance of reinjury from either treatment or continued play is important to the earliest recovery. It has been suggested that heat actually arrests Osteogenesis⁷ but diathermy and ultrasound are not indicated. As swelling, pain and tenderness subside, gradual knee flexion exercises are begun in the prone position at the patient's own pace. Pain produced by exercises indicate they should be avoided or approached less aggressively. Jackson suggests that as the patient reaches 90 degrees of flexion in the knee he is ready for more vigorous and strenuous flexion and extension exercises and the patient moves into the third phase of rehabilitation.

During this phase running sports may be permitted but repeated injury from direct contact again should be stringently avoided. Molloy and McGuirk⁵ feel that myositis ossificans can be halted and the recovery period shortened by aspiration of the hematoma and injection with Xylocaine, Decadron and hyaluronidase. As many as three weekly injections has been recommended. Recently Diphosphonate by mouth has been used to prevent deposition of calcium phosphate in Paget's disease and myositis ossificans progressiva and has been recommended for this condition.²

Conclusion

A rather innocuous appearing contusion of the thigh can result in long term disability. Progressive swelling and restriction of knee motion can halt the immediate career of an athlete. Repeated injury to this same area can result in months of convalescence. It is important that a contusion of the thigh be rested until the initial

reaction subsides. Complete painless range of motion and strong quadriceps strength is a prerequisite for resuming contact sports.

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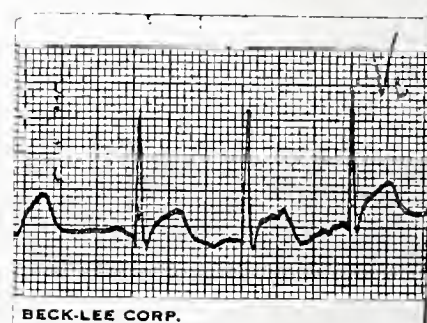
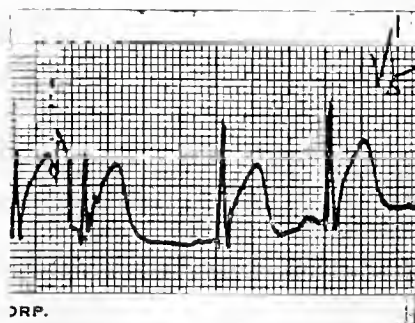
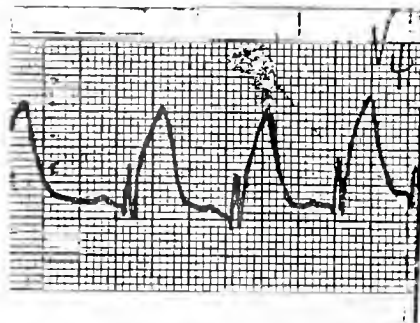
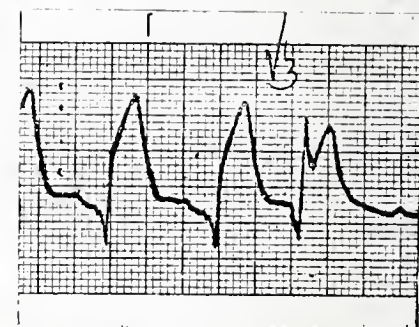
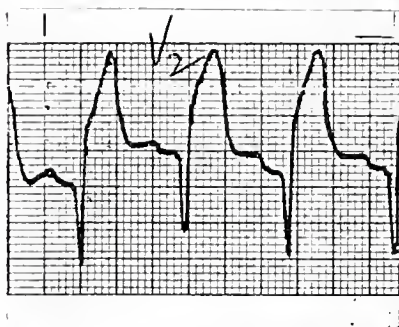
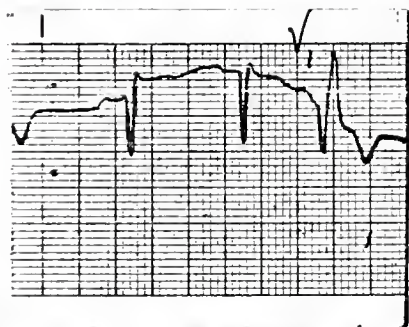
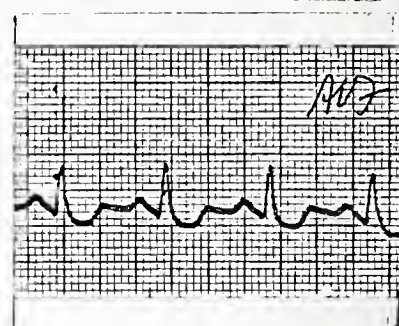
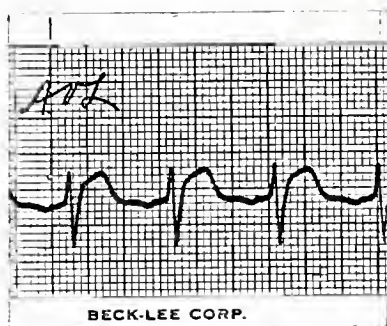
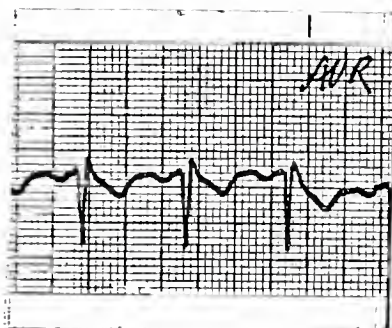
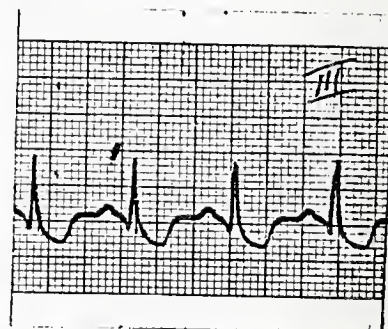
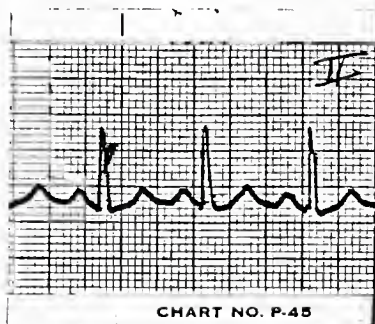
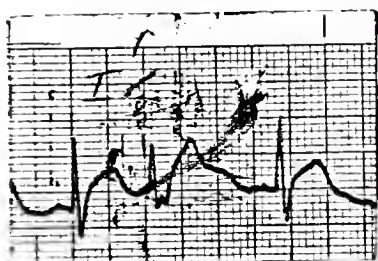




The Department of Cardiology, University of Arkansas College of Medicine
(See Answer on Page 260)

46-year-old male admitted with severe chest pain.

1. What is the diagnosis?
2. Three days later the patient developed a systolic murmur and the ECG axis shifted to the right. What has happened?
3. How would you make the diagnosis in the CCU?



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Anatomical and Physiological Characteristics to Predict Football Ability at the University of Arkansas

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INTRODUCTION

It has generally been assumed that quality athletes suffer from mild-to-moderate toe-in problems, but this has never been extensively studied. Mothers often carry a small child into the office complaining that since his recent onset of walking, he is quite bow-legged and clumsy. If the father accompanies the child, it may be noted that he suffers from a similar affliction, but on closer questioning, was a quality athlete in high school, particularly in sprinting and other short-distance events. What then is the physician to tell the concerned mother regarding a decision to undertake a period of extensive and expensive bracing or to leave the child uncorrected? Will the child with bow-legs and torsional problems unnecessarily have orthopaedic complaints when older? Is this child likely to become a better-performing athlete than the knock-kneed child with a toe-out alignment?

HISTORY

Many historians believed that football was played as early as 500 B.C. by the Greeks and

Romans. The foundation for the modern game of football was laid by the English about 1600 A.D. Football made an appearance in the United States during the early nineteenth century, and by 1866, Henry Chadwick had outlined the rules of Rugby Football. Football continued to grow in popularity and interest, but it was not until after World War I that historians were given any indication on just how popular football was going to be.

In the early twentieth century, football games were won by power plays into the opponent's line; therefore, very powerful and large players were chosen for the teams. It was not until the second decade of the twentieth century that the forward pass became legal, which subsequently contributed to the appeal, versatility, and scientific nature of the game, which has made it so popular today. With the advent of science and strategy, football players had to have more than just weight and muscle.

An analysis of the game made it possible to pre-determine ability in football; for one could predict performance in any sport that had component factors which could be measured and analyzed. An analysis of sports revealed that

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agility, strength, speed, and power, were essential general athletic qualities.¹

Prediction tests are an important part of physical education as they are in other fields of education. Several tests have been developed in some areas of athletics, while for several sports, such as football, very little has been done.

The proper selection of football players for the various positions on the team has become a very important problem for the coach. The late Knute Rockne indicated that care must be taken in the selection of football personnel when he said: "A coach and his system are just as good as his players, not an iota better. Give me great players and they can win without a system."²

Football coaches seek young men who have the ability to win. Any time football coaches gather, a popular subject is the outstanding personnel of the past season. Comments usually heard are that a player is quick, agile, and powerful; has great balance; is hard to stop or has great drive. Leahy pointed out that self-confidence, intelligence, poise, speed, ability to relax, competitive desire, endurance, strength, agility, size, and excellence in performing skills were the qualities he would like to have in his football players.³

Coaches are interested in these same general and specific qualities, but most of them admit they are often wrong in predicting these qualities in a young man. Time, money, and energy are wasted on young men who do not have the capabilities of playing on the varsity.

Most football coaches still rely on subjective analysis for predicting playing ability. In college recruiting an athlete with the ability to play on the varsity is one of the most important aspects of coaching. For this reason, there is a definite need for an improved understanding of these traits which have contributed to a successful football player. Coaches have needed an objective method of predicting playing ability.

The following hypothesis expressed as a question was tested: Is there a general test battery which can be used to predict football playing ability?

Although there were several factors in predicting ability, the major areas of concentration were: anatomy, strength, power, and balance. All these measurements were important to a successful football player. In the review of related

research, there were no studies using the anatomical tests of internal hip rotation, external hip rotation, tibial torsion, and bow-legs.

REVIEW OF THE LITERATURE

No previous studies were found relating the prediction of athletic ability and orthopaedic anatomical characteristics. The studies indicate the clinical methods of determining tibial torsion, external hip rotation, internal hip rotation, and bow-legs. Reliability has not been significantly accurate, as the most accurate tests have been done on cadavers. No research was found on athletes utilizing these measures. Review of studies to relate balance and strength to athletic ability revealed few studies which investigated the importance of strength in frequently used balance tasks. However, several studies indicate that there is a high correlation between the strength tests and balance tests. Research revealed that the best method of testing strength was the cable tensiometer, developed by Clarke, which had a reliability of between .90 and .96, also indicating the slight relationship between strength and athletic ability.⁴

Power is the amount of work done divided by the time in which the work is done.⁵ The successful performance of most kinds of muscular activity requires the appropriate application of muscular power. It has been demonstrated that muscle speed and strength, in some fashion and in varying degrees, plays a role in the successful application of power in physical performance.

Analysis of a study by Start et al reviewed power, speed, isometric strength, and anthropometric measures in the lower limb. The major conclusion was that speed had a considerable similarity to power, and little to strength, and the latter two factors appeared reasonably separate entities.

Margaria, Aghermo, and Rovelli developed a method of measuring muscular power (anaerobic) in man. The subjects were asked to run at top speed up ordinary stairs, two (of 17.5 cm each) at a time. The time employed to cover an even number of jumps was measured with an electronic clock sensitive to .01 second, driven by two photoelectric cells. The results indicated that anaerobic power seemed to increase with age to reach a maximum of 1.5 to 1.6 kg-m/kg-sec. at twenty to thirty years and then to decrease progressively to a value less than half at about sev-

enty years of age. The data for athletes were significantly higher than the data for untrained non-athletic subjects. The advantages to this test were: (1) It was a measure of a meaningful physically well-defined character namely power output; (2) No particular knowledge or skill was required for the operator; (3) No expensive ergometric apparatus was required; a common staircase of known dimensions and an accurate timer being sufficient to this purpose; (4) Exercise was habitual for everyone and did not require particular training or skill; (5) It did not lead to exhaustion; (6) Exercise involved a very large fraction of the muscular masses of the body; and (7) It could find wide application in population surveys.⁶

Within limitations of the investigation one might conclude that power production of the legs and lower trunk as measured by Margaria's test of anaerobic power was a characteristic component of successful college football players, and that anaerobic power was found to be significantly different among various playing positions.⁷

The successful performance of most kinds of muscular activity required the appropriate application of muscular power. The most common methods of determining power were standing broad jump, vertical jump, and Margaria's test for anaerobic power. Margaria's test for anaerobic power was one of the best because of the simplicity of the activity performed and the small amount of equipment needed to test subjects.

I. Methods and Materials—The purposes of this study were to determine the value of (1) anatomical measurements, including tibial torsion, bow-legs, internal hip rotation, and external hip rotation, (2) power measurements, consisting of the Margaria-Kalamen Power Test and forty-yard dash, (3) strength measurements, containing hip abduction, knee flexion, knee extension, and plantar flexion, (4) a static balance test, and (5) historical data, including height and weight; to determine which tests were most practical and useful to college coaches for measuring playing ability in football; and to develop a statistical equation for predicting success in playing college football.

A. The Subjects—The subjects of this study were fifty-six scholarship football players from the University of Arkansas squad during the 1975 season. The players were divided into two

groups, offense and defense, based on the positions they played during the 1975 season. There were twenty-nine offensive players and twenty-seven defensive players tested.

B. Anatomical Measurements

1. Bow-legs. Bow-legs was one of the anatomical measurements. To measure bow-legs, the subject stood with the malleoli together and feet pointing forward. A straight ruler was used to determine the distance between the mid-points of the patellas and the distance was recorded to the nearest one-eighth of an inch. Crane noticed that bow-legs and tibial torsion were common, so he measured the distance between patellas and compared it with tibial torsion and discovered that bow-legs and toeing-in (internal tibial torsion) were commonly associated.⁸

2. Tibial torsion. The next anatomical measure was tibial torsion. Tibial torsion is the commonly accepted term used to describe any twist or rotation of the tibia on its longitudinal axis which produces a change in alignment of the planes of motion of the proximal and distal articulations. The main concern in this study was the toeing-in or internal tibial torsion. Hutter, by using a goniometer, measured the angle of malleolar torsion,⁹ and in this study the same technique was used. The subject assumed a sitting position at the edge of a bench with his knees at a ninety degree angle. The angle from the posterior aspect of the medial malleolus to the anterior aspect of the lateral malleolus was measured by the goniometer. The investigator assumed a standing position and looked down at the knee to the ankle to measure the angle.

3. Internal hip rotation. The third anatomical measurement was internal hip rotation. Internal hip rotation, according to Crane, is the internal angle of the femur and is the measurement of the twist of the shaft of the femur which directs the femoral head and neck forward in relation to the plane of the femoral condyles.¹⁰ Swanson's method of determining internal hip rotation was used.¹¹ The subject assumed a sitting position with his knee flexed at ninety degrees. The outer edge of the foot was held by the examiner in one hand and the other hand was placed on the top of the patella. The lower leg was rotated outward, and with a goniometer the angle of deviation of the lower leg from the perpendicular

was measured. The angle was recorded on the data sheet to the nearest degree.

4. *External hip rotation.* External hip rotation was the last anatomical measurement. External hip rotation is the external angle of the femur and measures the twist of the shaft of the femur which directs the head and neck of the femur backward in relation to the plane of the femoral condyles. Swanson's method was repeated to determine external hip rotation.¹² The subject assumed the same position as in internal hip rotation but the lower leg was rotated inward instead of outward. The angle of deviation of the lower leg from the perpendicular was recorded on the data sheet.

C. Strength measures—Four measures of strength were included: (1) hip abduction; (2) knee flexion; (3) knee extension; and (4) plantar flexion. All the measures were performed on a testing bench developed by Clarke for cable tensiometry.¹³ According to Clarke's research, these strength measurements had a reliability of between .90 and .96.¹⁴

1. *Hip abduction.* The first strength measure was hip abduction. Hip abduction is the movement of the lower extremity away from the middle of the body. The movement included the following muscles: (1) Gluteus Medius; (2) Gluteus Minimus; (3) Gemelli; (4) Sartorius; and (5) Tensor Fasciae Latae. The subject assumed a supine position on the bench with his lower leg extended over the edge of the bench and his knee flexed at ninety degrees. His arms were folded across his chest. The tensiometer was connected to a wire, and the wire was attached to a strap which was placed around the leg just above the patella. The leg was placed at a twenty degree angle from the midline of the body. On command, the subject pulled his leg away from the midline of his body. The reading was recorded on the data sheet and later converted to pounds of force.

2. *Knee extension.* Knee extension is the movement of the lower leg as it is extended from 90 degrees to 180 degrees. Extension results from the contraction of four large muscles of the thigh known as the quadriceps group. The movement is very significant in locomotive activities, such as walking and running, and is of prime importance in specific skills, such as jumping, kicking, and dodging. The muscles included in the

group are: (1) Rectus Femoris; (2) Vastus Intermedius; (3) Vastus Lateralis; and (4) Vastus Medialis.

To test for knee extension strength, the subject assumed a sitting position with the knee of his right leg at an angle of 115 degrees. His arms were placed at the side of the bench so that his hips were at ninety degrees and his elbows were locked. A strap was placed around his lower leg at the midpoint between the ankle and the knee. The strap was connected to a wire, and the tensiometer was attached to the wire. On command, the subject tried to extend his knee. The score from the tensiometer was recorded on the data sheet.

3. *Knee flexion.* Knee flexion was the third strength measure. Knee flexion is caused by the action of eight muscles and is one of the important movements in walking and running (during the recovery phase of the stride). Therefore, it is one of the most frequently used movements. The muscles included in this action are: (1) Biceps Femoris; (2) Semimembranosus; (3) Semitendinosus; (4) Gastrocnemius; (5) Sartorius; (6) Gracilis; (7) Plantaris; and (8) Popliteus.

To determine the strength of knee flexion, the subject in a prone position extended his lower leg beyond the edge of the table with his patella resting at the edge of the table, and his arms folded under his chin. The leg being tested was flexed at the knee joint to 165 degrees. A strap, hooked to the cable wire, was placed at the midpoint of his lower leg between the ankle and the knee. The tensiometer was connected to the wire. On command, the subject flexed his knee and the score was recorded on the data sheet.

4. *Plantar flexion.* The last strength test was plantar flexion. Plantar flexion is performed by eight muscles, seven of them being multi-joint muscles. One muscle (gastrocnemius) extends beyond the knee joint and contributes to knee flexion. Five other muscles extend into the foot and contribute to foot movements. Plantar flexion is a powerful movement because it is caused by the strong muscles of the calf, and their mechanical ratios are reasonably good in this movement. This is one of the most significant movements because of its contribution to walking and running. The muscles are the following: (1) Gastrocnemius; (2) Soleus; (3) Peroneus Longus; (4) Peroneus Brevis; (5) Tibialis Posterior;

(6) Flexor Digitorum Longus; (7) Flexor Hallucis Longus; and (8) Plantaris.

To measure plantar flexion, the subject assumed a supine position with his legs extended at the hip and knee joint to 180 degrees and his arms folded across his chest. The foot being tested was dorsiflexed at the ankle joint to ninety degrees. His shoulders were braced against blocks and a stirrup was placed on the ball of his foot. To aid in comfort, a flat block of wood approximately as wide as his foot was placed between his foot and the stirrup. On command, the subject attempted to extend his foot while his knee and hip remained locked. The score on the tensiometer was recorded on the data sheet.

D. Power tests — The power tests in this study consisted of the Margaria-Kalamen Test of Anaerobic Power and the Forty-Yard Dash. These tests comprise two of the best methods for determining lower body explosive power, which was deemed very important in the prediction of football playing ability.

The Margaria-Kalamen Anaerobic Power Test, a method of measuring explosive power through a formula using body weight and time, gives the horsepower generated by a subject.¹⁵ Costill and others used this test to predict playing position and playing ability. Costill found significant differences in vertical speed and anaerobic power among ability-grouped players and athletes grouped by playing position.¹⁶ The results indicated that the investigator was ninety-five percent correct in his predictions of playing position and playing ability.

In order to calculate horsepower, body weight in kilograms, time, and distance in meters were needed. The subject was weighed and was given eight trials, with the best time being recorded on the data sheet. A Dekan timer (performance analyzer) was used to record time to the hundredth of a second. The subject started and stopped the timer by touching impact pads with his foot. The test consisted of a flight of nine stairs, 1.05 meters in length. The pads were placed on the third step (start) and the ninth step (stop). The subject, taking a fifteen foot running start, stepped on the third stair to start the timer, then stepped on the sixth stair, and finally stepped on the ninth stair to stop the timer. The best time of the eight trials was used to determine horsepower, and the horsepower was recorded on the data sheet.

The forty-yard dash is a measure of explosive power and speed. Two timers using stop watches recorded the time to the nearest tenth of a second. The watches were started on the first movement of the subject and stopped as the runner broke the plane at forty yards. The better of two trials was recorded on the data sheet.

E. *Balance test* — Balance was also considered an important aspect of football ability. Fleishman's method of static balance was used in this study.¹⁷ The subjects stepped on a board one-inch wide and twelve inches long, with the length of the foot parallel to the length of the board. The hands were placed on the hips and the eyes were closed. The subject raised his free foot, and using a stop watch, the amount of time he remained balanced on one foot was determined. The score was the sum of two trials.

F. *Criterion Variable* — The purpose of this study was to predict football playing ability. In order to develop a battery of tests to predict football ability a criterion measure was needed. The measure consisted of a two-item ability-rating scale to be completed by six assistant coaches at the University of Arkansas. There were three offensive assistants, who rated only offensive players, and three defensive coaches, who rated only defensive players. The scale was a subjective evaluation of playing ability.

Pruit adapted the scale in 1969 for his thesis on football ability and achieved a reliability of .95 for the study.¹⁸ Pruit's adaptation was used as the criterion measure in this study. There were two items: (1) playing his position; and (2) attitude toward coaching. The scale was based on five points ranging from excellent to unplayable. The points from the two items were summed. The maximum points were forty-five and the minimum points were nine. Each defensive player received three scores and the offensive players were also given three ratings each.

Item one, "Playing his position," consisted of four sections: (1) knows every duty well and has first team ability; (2) analyzes changes in offensive and defensive situations quickly; (3) blocks and tackles with skill, accuracy, and body control; and (4) is aggressive and has football "know how."

Item two, "Attitude toward coaching," contained five areas: (1) listens to coach at all times and carries out instructions; (2) plays for team to win and never thinks of his own glory; (3)

works constantly to improve fundamentals and conditioning; (4) very aggressive; and (5) tries hard and never quits.

G. *Reliabilities* — The test-retest was used to determine the reliability of the testing procedures.

H. *Statistical Analysis* — The primary statistical techniques used in developing the regression equations were Polynomial Regression and Step-Wise Multiple Regression utilizing the University of Arkansas' IBM 360/50 SSP III Computer.

The means and standard deviations for the criterion measure of subjective coaches' rating of football ability and the predictor variables are presented in Table 1. These data represent the calculations from fifty-six subjects.

The correlation matrix for the criterion measure and the predictor variables of selected anatomical, strength, balance, and power measures are presented in Table 2. At the .05 level, a correlation coefficient of at least $\pm .263$ was required for significance.

III. Discussion

A. *Orthopaedic Measures* — The basic measures were: (1) internal hip rotation; (2) external hip rotation; (3) tibial torsion; and (4) bow-legs. The research revealed that these measures had never been used as a method of predicting football ability. The results in the present study in-

dicated that bow-legs (.445) and tibial torsion ($-.344$) had the highest correlations with the criterion variable. The average tibial torsion was 42.6 degrees, while in Elftman's study, the normal tibial torsion was 27.40 degrees. This indicated that scholarship football players have greater tibial torsion than normal subjects.¹⁹

B. *Strength Measures* — In the current study, the strength measures had low correlations with the criterion variable. The strength tests were: (1) hip abduction; (2) knee flexion; (3) knee extension; and (4) plantar flexion. Hip abduction had the highest correlation (.175), but it was not significant at the .05 level. These results seem to agree with the literature.

C. *Power Measures* — In the present study, the forty-yard dash and the Margaria-Kalamen Power Test were used as measures of power. The correlations with football ability were $-.064$ for the forty-yard dash and .255 for horsepower of the Margaria-Kalamen Test. Neither reached the critical level of $\pm .263$ to be significant at the .05 level, although horsepower was very close. The correlation for horsepower was the fourth best measure of football ability in the polynomial regression program. Other studies have shown that the Margaria-Kalamen Power Test was a good method of predicting football ability.

Within limitations of the investigation, one

TABLE 1
THE MEANS AND STANDARD DEVIATION FOR THE CRITERION
MEASURE AND SELECTED ANATOMICAL, STRENGTH,
BALANCE, AND POWER MEASURES

Number	Variable	Type	Mean	Standard Deviation
1.	Subjective Rating by Coaches	Criterion	97.27	16.83
2.	Internal Hip Rotation	Predictor	36.75	7.58
3.	External Hip Rotation	Predictor	39.27	8.50
4.	Tibial Torsion	Predictor	42.59	6.62
5.	Bow Legs	Predictor	6.18	0.74
6.	Hip Abduction	Predictor	49.86	10.73
7.	Knee Extension	Predictor	281.89	55.30
8.	Knee Flexion	Predictor	193.07	39.39
9.	Plantar Flexion	Predictor	319.93	74.70
10.	Time (Margaria Kalamen)	Predictor	0.48	0.04
11.	Horsepower (Margaria Kalamen)	Predictor	2.84	0.29
12.	Forty-Yard Dash	Predictor	4.89	0.24
13.	Balance	Predictor	3.76	1.34
14.	Height	Predictor	73.84	2.11
15.	Weight	Predictor	215.54	25.09

might conclude that power production of the legs and lower trunk as measured by Margaria's Test of anaerobic power was a characteristic component of successful college football players and that anaerobic power was found to be significantly different among various playing positions.²⁰

In the present study, horsepower and time were related significantly at the .05 level to the forty-yard dash. The forty-yard dash was highly cor-

related with hip abduction, knee extension, plantar flexion, height, and weight. The Margaria-Kalamen Power Test correlated highly with hip abduction, knee extension, knee flexion, forty-yard dash, height, and weight. The results agree with the literature that the Margaria-Kalamen Power Test is significantly related to the forty-yard dash, and is a good measure of football ability.

TABLE 2
THE CORRELATION MATRIX FOR THE CRITERION MEASURE
AND FOURTEEN PREDICTOR VARIABLES

	<i>Coaches Rating</i>	<i>Internal Hip</i>	<i>External Hip</i>	<i>Torsion Tibial</i>	<i>Bow Legs</i>	<i>Abduction Hip</i>	<i>Extension Knee</i>
1. Coaches Rating	*1.000	0.031	-0.076	*-0.344	*0.445	0.175	0.061
2. Internal Hip	—	*1.000	0.002	-0.226	-0.155	-0.157	-0.064
3. External Hip	—	—	*1.000	0.206	0.072	-0.243	0.031
4. Tibial Torsion	—	—	—	*1.000	-0.104	-0.134	0.088
5. Bow Legs	—	—	—	—	*1.000	0.154	0.048
6. Hip Abduction	—	—	—	—	—	*1.000	0.086
7. Knee Extension	—	—	—	—	—	—	*1.000
8. Knee Flexion	—	—	—	—	—	—	—
9. Plantar Flexion	—	—	—	—	—	—	—
10. Time (M. Kalamen)	—	—	—	—	—	—	—
11. Horsepower (M. K.)	—	—	—	—	—	—	—
12. 40-Yd. Dash Time	—	—	—	—	—	—	—
13. Balance	—	—	—	—	—	—	—
14. Height	—	—	—	—	—	—	—
15. Weight	—	—	—	—	—	—	—

	<i>Knee Flexion</i>	<i>Flexion Plantar</i>	<i>(M.K.) Time</i>	<i>Horsepower (M.K.)</i>	<i>40-Yd. Dash</i>	<i>Balance</i>	<i>Height</i>	<i>Weight</i>
1. Coaches Rating	0.042	-0.088	-0.077	0.255	-0.064	-0.075	-0.208	0.217
2. Internal Hip	-0.217	0.046	-0.250	0.056	-0.049	0.039	-0.030	-0.127
3. External Hip	-0.095	-0.249	-0.120	0.106	0.047	-0.141	0.070	0.013
4. Tibial Torsion	-0.052	-0.033	0.128	-0.076	0.070	0.067	0.068	0.028
5. Bow Legs	0.035	-0.063	-0.103	0.183	-0.189	-0.101	-0.036	0.031
6. Hip Abduction	*0.301	*0.311	*0.298	0.121	0.199	-0.069	0.139	*0.310
7. Knee Extension	*0.446	*0.348	0.053	*0.490	*0.345	0.127	*0.356	*0.469
8. Knee Flexion	*1.000	0.182	0.108	0.275	0.231	0.001	0.040	*0.307
9. Plantar Flexion	—	*1.000	0.116	0.181	*0.300	0.018	*0.425	0.234
10. Time (M. Kalamen)	—	—	*1.000	-0.176	*0.647	-0.150	*0.366	*0.502
11. Horsepower (M. K.)	—	—	—	*1.000	*0.292	0.020	*0.376	*0.761
12. 40-Yd. Dash Time	—	—	—	—	*1.000	-0.124	*0.589	*0.685
13. Balance	—	—	—	—	—	*1.000	-0.088	-0.075
14. Height	—	—	—	—	—	—	*1.000	*0.572
15. Weight	—	—	—	—	—	—	—	*1.000

*-0.263 was statistically required for significance at the .05 level.

IV. Summary

A. During the spring semester of 1976, at the University of Arkansas, fifty-six scholarship football players, who were members of the 1975 squad, volunteered to participate in the current study. Fourteen measures were determined on each of the fifty-six players. In addition, six assistant football coaches, three offensive and three defensive, rated each offensive and defensive player, respectively. This rating on football ability was used as the criterion measure.

Step-Wise Multiple Regression and Polynomial Regression were utilized to form predictive equations whereby fourteen measures were multi-correlated with the criterion variable.

The results of the study seem to justify the following conclusions for the prediction of football ability for scholarship football players at the University of Arkansas:

1. Tibial torsion, bow-legs, standing height, body weight, Margaria-Kalamen Anaerobic Power Test, and knee flexion are the best measures for the prediction of football ability.
2. Strength tests using a cable tensiometer are not good predictors of football ability.
3. Fleishmann's Static Balance Test is not a good indicator of football ability.

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ANSWER—Electrocardiogram of the Month

1. Hyper acute changes of antera septal myacardial infarctian. Occasional premature nadal beats, same with aberrancy.
2. Patient ruptured his septum and ECG criteria af right heart strain is developing. The differential should also include papillary muscle rupture and left posteriar hemi black with mitral regurgitation secondary ta abnormal cantraction pattern.
3. The diagnosis can be made by placing a Swan-Ganz while obtaining O₂ saturations in the vena cava, RA, RV, and PA. The O₂ saturation should increase mare than 5% between the RA and PA. If there is no step up, then the Swan-Ganz should be flaated out of the wedge positian, and pressures recarded. A large V wave, pressure wave during systale if blood drawn fram this positian has near 100% saturation, suggests papillary muscle rupture. Another clue ta this would be very easy withdrawal af blaad fram the Swan-Ganz when in the wedge position.



Cooperative Health Manpower Statistics System

Elizabeth Ingram*

The division of Health Statistics, Arkansas Department of Health, is under contract to the National Center for Health Statistics to collect, tabulate, and process statistical data on thirteen health professions. Annual surveys are conducted in order that timely, reliable, and comparable data concerning the supply, distribution, and selected characteristics of health manpower in Arkansas may be made available at the State and local levels. This information is also forwarded to NCHS for inclusion in the Cooperative Health Statistics System at the national level. The surveys are completed voluntarily by the licensed professionals. The respondents are guaranteed confidentiality. Any publication or release of these data, except to NCHS, is in summary form such that individuals are combined into groups and therefore cannot be identified.

Some of the highlights of the 1977 surveys:

- Average hours of patient care per week for physicians (M.D.) is 50.2 hours.

- Ratio of all physicians (M.D.), not known to be inactive, to population is 1:975, statewide. Highest county ratio is 1:367 in Pulaski County; lowest county ratio is 1:6500 in Lincoln County.

- 55.5 percent of physicians (M.D.) respondents graduated from the University of Arkansas Medical School. Their average age is 48.

- The average age of responding dentists is 47. 99 percent of dentists are male; 56.4 percent are licensed by more than one state.

- 63.5 percent of dentists are in solo practice. 68.0 percent are in general practice.

- The average age of responding physical therapists is 37; 45.8 percent are male.

- 79.1 percent of physical therapists hold baccalaureate degrees; 9.6 percent hold masters or higher degrees.

- The average age of nursing home administrators is 47; 52.5 percent are female.

- 57 percent of active Arkansas registered nurses are graduates of diploma programs and 17 percent hold baccalaureate or higher degrees. 26 percent hold associate degrees.

- The average age of responding chiropractors is 54; 6 percent are female. Average hours of patient care per week for chiropractors is 35.3 hours.

- 28.3 percent of physicians (M.D.) respondents are in solo practice while 32.0 percent are in partnerships or group-owned practices.

- 2.8 percent of veterinarians are female. 41.5 percent of veterinarians are solo practitioners

<i>Health Profession</i>	<i>1977</i>	<i>1977 Total</i>
	<i>Total No. Licensed by Arkansas Boards</i>	<i>No. Active Respondents in Arkansas</i>
1. Chiropractor	250	116
2. Dentist	1,030	653
3. Dental Hygienist	335	179
4. Physician	3,824	1,935
5. Osteopath	36	10
6. Registered Nurse	10,206	6,349
7. Licensed Practical Nurse	9,416	6,067
8. Nursing Home Administrator	396	310
9. Optometrist	219	170
10. Pharmacist	2,010	1,138
11. Physical Therapist	177	98
12. Podiatrist	24	21
13. Veterinarian	508	239

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while 21.2 percent are in partnerships or group-owned practices.

- 61.5 percent of dental hygienists hold associate degrees and 23.9 percent hold baccalaureate or higher degrees. The average age of responding hygienists is 31.

- 73.2 percent of dental hygienists are employed by an individual practitioner while 5.6

percent are employed by partnerships or group-owned practices.

- 59 percent of physicians (M.D.) are licensed in more than one state.

- Average age of physicians (D.O.) is 59. 58.8 percent listed their private office as their principal setting and 20.6 percent listed a hospital as their principal setting.



EDITORIAL

It's Harder for Some to Lose Weight

Alfred Kahn, Jr., M.D.

"Lose some weight" is a frequent admonition to patients by medical practitioners in general medicine and all specialties. But it is becoming increasingly apparent that it is harder for some patients to lose than others. For example, children who are overfed in infancy and puberty tend to have more fat cells than children of normal nutrition; this seems to play an important role in obesity in later life. Disturbed fat metabolism is a practical problem.

The medical literature is beginning to demonstrate many papers on fat metabolism. Michael P. Czech has published on the "Cellular Basis of Insulin Insensitivity In Large Rat Adipocytes" (*J. Clin. Investigation*, Vol. 57, p. 1523, June, 1976). As Czech points out, it has been known for some ten years that obese human fat tissue utilizes glucose in reduced amounts, even with insulin present. The same is true of obese rats; these animals have a high blood insulin level presumably due to decreased utilization. The author wanted to investigate in this paper why large fat cells from obese, old rats did not metabolize glucose as well as small fat cells from normal

rats. The upshot of his investigations were that the poor insulin stimulatory response in large fat cells was due to some alteration in the enzymatic intracellular activities. It was not due to the glucose transport system, the insulin receptors, or the coupling mechanism. This defective intracellular enzyme response to insulin in fat cells occurs principally when the glucose concentration is high — not at low or normal levels.

Karakash, Assimacopoulos—Jeannett and Jeanrenaud have studied obese hyperglycemic mice which show many similarities to human maturity onset diabetes (*J. Clin. Investig.*, Vol. 57, p. 1117, May, 1976). These mice and humans with maturity onset diabetes have hyperinsulinemia; hyperinsulinemia is related to obesity, according to Karakash, and perhaps it is causally related. Inasmuch as insulin, which is pancreatically derived, has to pass through the liver, these investigators felt that hyperinsulinemia might result from faulty extraction in the liver. To test this idea, livers from lean mice were perfused with insulin and the amount removed was calculated; the same was done with fat mice. The livers

from the obese mice did not remove insulin as well as from lean mice — and thus more insulin was available to elevate the peripheral blood insulin level. The authors point out that up to the point of saturation, the liver removes insulin increasingly as the concentration of the insulin increases. The liver from obese mice became saturated with insulin at a lower level than normals. This leads to their conclusion that chronic hyperinsulinemia may be partly responsible for the decreased ability of livers from obese mice to extract insulin.

In the May, 1976, issue of *The Journal of Clinical Investigation*, Olefsky described "Decreased Insulin Binding To Adipocytes and Circulating Monocytes From Obese Subjects" (Vol. 57, p. 1165, May, 1976). He was also struck by the "decreased insulin binding to tissues from genetically and spontaneously obese rodents — the potential relationships between hyperinsulinemia, decreased insulin receptors, and insulin resistance." The same findings were obtained in overweight humans. He studied insulin binding to fat cells in 9 of 14 obese humans who were hyperinsulinemic and 16 controls. The 9 obese humans had fat cells with diminished ability to bind insulin; the other 5 were judged not insulin resistant as they had normal insulin levels and normal insulin binding by fat cells. Similar findings were noted with mononuclear cells of the blood. The obese individuals who were not insulin resistant in this study were young — and the resistant individuals were older. Olefsky concludes that he is not certain if obesity leads to decreased receptors and this leads to insulin resistant mice and hyperinsulinemia, or if obesity is first associated with hyperinsulinemia — and this in turn causes a decrease in receptors and resistance.

All of the studies in this field are not in total harmony — with regard to an explanation between the interaction of insulin and fat cells. Belfiore, Lo Vecchio, Borzi, and Iannello (*Metab.*, Vol. 25, p. 723, July, 1976) compared fat and lean diabetics intracellular metabolism. They studied NADPH — forming dehydrogenases of adipose tissue. These enzymes perform important intracellular functions. Surprisingly, the enzyme level in lean diabetics was quite depressed whereas in obese diabetics the results were normal. The authors discount insulin production

differences in lean and obese diabetics as a cause of this enzyme change.

Insulin is, of course, not the only hormone involved in fat metabolism. The blood fats — triglycerides — are responsive to the glucose antagonist glucagon. Pharmacological but not physiological doses of glucagon can bring about a fairly precipitous drop in the triglyceride level of patients with high blood triglycerides as demonstrated by Elkeles and Hambley (*Lancet*, p. 18, Vol. II, July 3, 1976). There was no evidence of resistance to glucagon as a cause of the hypertriglyceridemia.

The relationship of fat metabolism to insulin and other endocrines is an intricate fabric with many inter-relationships which as yet are incompletely understood. So when you say to a patient "lose weight," it may be a much more difficult task for some patients because of their metabolic and endocrine make-up.



THINGS TO COME



SYMPOSIUM ON PHILOSOPHY AND MEDICINE

The Seventh Symposium on Philosophy and Medicine, "Moral Use of New Knowledge in the Biomedical Sciences", will be held at the University of Missouri in Columbia, March 2, 3, and 4, 1978.

For further information contact: Professor William Bondeson, Director, College of General Studies, University of Missouri-Columbia, 420 General Classroom Building, Columbia, Missouri 65201, phone (314) 882-3875.

OFFICE MANAGEMENT OF MUSCULOSKELETAL CONDITIONS

A course, designed to emphasize recent advances in the treatment of musculoskeletal conditions encountered in office practice, is being offered by the University of Washington School of Medicine, Division of Continuing Medical Education, the Department of Family Medicine, the Department of Orthopaedics, and Washington

State Medical Association. The sessions will be held March 20th through March 24, 1978, at Elkhorn at Sun Valley, Idaho. There will be sessions from 7:30 A.M. to 10:30 A.M. and from 4:30 P.M. to 6:30 P.M. The course is approved for Category I of the Physician's Recognition Award of the American Medical Association. Prescribed credit from the American Academy of Family Practice has been requested. Registration fee is \$250.00 and must be paid by March 3, 1978.

For further information and course registration contact: Continuing Medical Education, School of Medicine, University of Washington; E-303 HSB, SC-50, Seattle, Washington 98195, telephone (206) 543-1050.

POSTGRADUATE COURSE

The University of Chicago Section of Gastroenterology and Liver Study Unit is sponsoring a three-day postgraduate course on Approaches to Clinical Problems in Gastroenterology and Hepatology on February 21-23, 1978. Topics will include peptic ulcer, gastrointestinal cancer, inflammatory bowel disease, hepatobiliary disorders, small bowel disease/nutrition, and functional disorders.

This program has been approved for 22 hours Category I credit by the American Medical Association. For further information contact Dr. Sumner G. Kraft, Course Director, 950 East 59th Street, Chicago, Illinois 60637, telephone (312) 947-5567.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Burdened heavily with Administration energy proposals and tax reform measures the first session of the 95th Congress staggers toward adjournment with a number of important health bills still far from resolved.

Among these important health bills are: The Hospital Cost Containment Plan, the Health, Education and Welfare Appropriation, a sweeping overhaul of Federal Drug Administration procedures, Medicare and Medicaid amendments, new federal controls over clinical laboratories, aid for rural health clinics, guidelines for genetic research, easing required U. S. medical school admission of foreign medical graduates, postponing the proposed saccharin ban, amending the black lung and renal disease programs, expanded aid for maternal and child health care, continued higher pay for federal and military physicians and excuse from income tax of federal medical scholarship income.

* * * *

However, the Medicare-Medicaid anti-fraud and abuse bill has won overwhelming House ap-

proval on the way to expected final passage this year. Stricken from the measure was a provision to guarantee medical records privacy.

The bill, cleared by a 362-5 vote, vaults Professional Standards Review Organizations (PSROs) into major monitoring bodies to detect fraud and abuse in federal health programs.

The legislation also directs HEW to develop ambulatory care review methodologies for PSRO use; directs HEW to require capable PSRO's to undertake ambulatory care review within two years after designation as a PSRO; makes "competent" PSRO reviews of services conclusive for purposes of federal payment, if the PSRO has entered into a memorandum of understanding.

Fraud and abuse information detected by a PSRO would be provided to federal and state investigative agencies. Patient records in the PSRO would not, however, be subject to subpoena or discovery proceedings in a civil action.

Other provisions of the bill provide:

- increased Medicare penalties by upgrading fraudulent acts from misdemeanors to felonies;
- suspension from participation in Medicare

and Medicaid for practitioners convicted of a criminal offense related to involvement in Medicare or Medicaid;

- annual disclosure by Medicare and Medicaid institutional providers of the identity of any person with a five percent or more ownership in the institution;
- authority for subpoenas for information and review of Social Security health programs.

The bill, worked out jointly by the House Ways and Means and House Commerce Committees, also requires HEW to establish uniform reporting systems for health services institutions.

* * * *

Hearings earlier on the Senate version of the House-passed Medicare-Medicaid anti-fraud and abuse bill drew testimony from the AMA as to the importance of providing strong safeguards against the abuse of the confidentiality of patient records. Testifying before the Senate Finance Subcommittee on Health, Robert B. Hunter, M.D., Chairman of the AMA Board of Trustees, said "inappropriate distribution of individual medical records adversely affects the individual's constitutionally protected right of privacy."

Dr. Hunter supported a provision approved by the House Commerce Committee that prohibits PSROs from disclosing to the government PSRO records on individual patients not covered by federal programs without their written consent.

Dr. Hunter said the success of the patient-physician relationship depends to a great extent on the willingness of the patient to discuss freely with his physician all subjects relating to individual health no matter how personal or sensitive. "Should either party feel that this information, discussed privately, will become a matter of public record, the foundation of the patient-physician relationship would be irreparably harmed."

* * * *

HEW has issued detailed guidelines for health planners that included a goal of fewer than four hospital beds per 1,000 population.

"The guidelines will help put brakes on construction of new hospital bed space and high-cost specialty services such as open-heart surgery and computerized X-ray scanning," said HEW Secretary Joseph Califano.

The proposals, which are not final, would immerse the federal government deeply into alloca-

tion of health resources in communities and regions across the nation.

Regional Health Systems Agencies, provided in the Health Planning Law and challenged in court by the American Medical Association, not only are told to aim for a four per 1,000 bed ratio, but in later years "will be required to indicate how they will reach a bed population ratio of 3.7 per 1,000," according to HEW.

The current national average is 4.4 beds per 1,000 population. The reductions proposed by HEW would eliminate some 100,000 beds of the present one million beds over the next seven years. The number of beds at present "is significantly in excess of what is actually needed . . . and contributes to the high cost of hospital care with little or no recognizable health benefits," said HEW.

The guidelines propose that there should be an average annual occupancy rate of at least 80 percent for all non-federal, short-term hospital beds except under extraordinary circumstances. Exceptions would include small rural hospitals and facilities in areas with large seasonal changes in population.

The 205 local Health Systems Agencies were also advised on obstetrical services, pediatric inpatient services, neonatal intensive care units, open-heart surgery, cardiac catheterization units, radiation therapy, computed tomographic scanners, and end-stage renal disease.

A spokesman for the American Hospital Association commented that the proposals were too detailed and would provide less flexibility for local planning agencies if Congress grants HEW the power to put them into effect.

However, three members of the Senate Human Resources Subcommittee on Health — Sens. Edward Kennedy (D.-Mass.), Jacob Javits (R.-N.Y.), and Richard Schweiker (R.-Penn.) — wrote Secretary Califano that they were "pleased that HEW has 'bitten the bullet'." The time has come, they said, "to set numerical standards."

If the recommendations were accomplished, HEW officials said, the nation would save more than \$2 billion annually. HEW pins its hopes for the guidelines on Congress approving a law giving the federal government more teeth over localities in enforcing and mandating standards. The planning law comes before Congress for extension and revision next year.

In addition to the number of beds and occu-

pancy rate recommendations, here is what the proposed regs set forth:

- Obstetrical services: there should be at least 2000 deliveries annually in an obstetrical unit located in an area with a population of 100,000 or more and at least 500 deliveries in an area with a smaller population.

"In view of declining birth rates and the mounting under-utilization of obstetrical beds, obstetrical standards for the minimum number of deliveries and occupancy rates are designed to discourage unnecessary duplication and inappropriate proliferation of services, and to maintain quality of care," said HEW.

- Pediatric inpatient services: there should be a minimum of 20 beds in a pediatric unit, except in rural areas.

Pediatric units should maintain average annual occupancy rates related to the number of pediatric beds (exclusive of neonatal intensive care units) in the facility. For a facility with 20-39 pediatric beds, the average annual occupancy rate should be at least 65 percent; for a facility with 40-79 pediatric beds, the average annual occupancy rate should be at least 75 percent; for facilities with 80 or more pediatric beds, the average annual occupancy rate should be at least 80 percent.

- Neonatal intensive care units: the total number of neonatal intensive care beds should not exceed four per thousand live births per year in a defined neonatal service area. A single neonatal intensive care unit should contain a minimum of 20 beds.
- Open-heart surgery: there should be a minimum of 200 procedures performed annually in any institution in which open-heart surgery is performed. No new open heart units should be opened unless each existing or previously approved unit in the health service area (or areas) to be served is operating and is expected to continue to operate at a minimum of 350 open-heart surgery cases per year.
- Cardiac catheterization: there should be a minimum of 300 procedures (intracardiac and/or coronary artery catheterization) performed annually in any adult cardiac catheterization unit plus a minimum of 150 cardiac catheterizations performed annually in any pediatric cardiac catheterization unit. No new cardiac catheterization units opened

in any facility not performing open-heart surgery. No new adult cardiac catheterization units opened unless the projected number of studies per year is greater than 500.

- Radiation therapy: a megavoltage radiation therapy unit should serve a population of at least 150,000 persons or at least 450 new cancer cases per year. No new megavoltage units opened unless each existing or approved megavoltage unit in the Health Service Area(s) is performing and is expected to continue to perform at least 7,500 treatments per year.
- Computed tomographic scanners: computed tomomer (head and body) should operate at a minimum of 2,500 patient procedures per year. There should be no CT scanners approved unless each existing or approved CT scanner in the service area is performing at a rate greater than 4,000 patient procedures per year.
- End-stage renal disease: the health systems plans established by Health Systems Agencies should be consistent with standards and procedures contained in the HEW regulations governing conditions for coverage of suppliers of end-stage renal disease services.

* * * *

At the request of President Carter, the HEW Department is developing recommendations for a national health insurance (NHI) proposal to be introduced into the Congress early next year.

In order to obtain a wide range of views on NHI, Secretary Califano has asked each of the HEW regional offices to solicit the views and recommendations of concerned citizens in their area.

The AMA via state medical societies has encouraged selected physicians to attend some 100 scheduled meetings across the country in order to present the viewpoints of the medical profession.

* * * *

Eight months after publication of a botched list of physicians receiving substantial Medicare payments in 1975, the government has published a new list reworked from top to bottom. After a protest last spring from the AMA over the high error rate, HEW Secretary Califano apologized and promised release of a corrected list.

Last March, responding to requests from the news media, HEW printed the names and

amounts received of 409 physicians and 1,750 groups that did more than \$100,000 of Medicare business in 1975. The Freedom of Information Law compelled this disclosure, HEW said.

The AMA checked the original list and found, in a sizable sample, an error rate of more than 60 percent.

HEW officials have announced that next time they will list all physicians who received any Medicare payments at all in 1976. Estimated costs to the government of preparing this annual listing is from 700,000 to \$1 million at the start and some \$300,000 annually afterward. No estimates have been made of how much added cost would fall on the carriers who have prime responsibility for gathering such data.

* * * *

"Operation Common Sense" to make readable the 6,000 pages of HEW Department regulations has been launched by HEW Secretary Califano.

Along the way some provisions will be eliminated in the "top-to-bottom" overhaul that will take years, Califano said.

"Long complicated regulations, often taking years to issue, have too long been the hallmark of the federal government in general and this department in particular," Califano said. "The President has vigorously declared his desire to see shorter, clearer regulations issued in timely fashion. I am determined that this department lead the federal government in the direction charted by the President."

Forty-five pages of material were issued to the press to explain Operation Common Sense. In reply to a question about this from a reporter, Califano said with a smile that sometimes clarity isn't served by brevity.

* * * *

The government has proposed regulations to strengthen the Medicaid child health screening program (EPSDT).

The regulations set forth by the Health Care Financing Administration (HCFA) clarify and update existing provisions dealing with penalties for states that fail to comply and method used in carrying out the screening of children. One purpose is to give states greater flexibility in administering the plan.

HCFA said "states have a responsibility to provide scheduling assistance, transportation, and follow-up services to eligibles in order to remove

significant obstacles that program experience clearly indicates eligibles generally have in obtaining EPSDT services."

The regulation adds immunization to the screening package rather than as an item to be determined for treatment later.

* * * *

Named Special Assistant for National Health Insurance at the HEW Department is James Mongan, M.D., a top staff member of the Senate Finance Subcommittee on Health.

Dr. Mongan was selected by HEW for the new post where the physician will report to Secretary Califano and to Assistant Secretary for Health, Julius Richmond, M.D. In announcing the selection, Califano said "I am confident that NHI will emerge as the premier domestic accomplishment of the Carter Administration."

Dr. Mongan, formerly of San Francisco, was a Public Health Service physician before joining the Finance Committee staff seven years ago.

In another HEW Department personnel move, M. Keith Weikel, PhD., acting director of the Medicaid Bureau, is resigning to take a post outside of government.



PHYSICIAN'S WIVES HONORED

The Union County Medical Auxiliary honored the wives of physicians who have recently located in El Dorado. Mrs. Henry B. Rogers was the hostess of a coffee given in their honor at her home. She was assisted by Mrs. W. M. Scurlock, Mrs. J. F. Wise, and Mrs. James E. Seale. Those honored were Mrs. Ronald L. Baldwin, Mrs. John P. McGraw, Mrs. R. D. Jennings, Mrs. Robert Sykes, Mrs. R. E. Pinkerton, Mrs. Steve A. Jones, and Mrs. Warren Riky.



PERSONAL AND NEWS ITEMS

DR. JACKSON TALKS WITH FIRST GRADERS

Dr. Jabez Jackson, Sr., recently visited with a first grade class in Newport. He demonstrated the various "tools of the trade" to the youngsters and answered their questions regarding medicine. Dr. Jackson is a retired Newport physician.

DR. JANECKI SERVES

Dr. Chet Janecki, an Orthopaedic Surgeon with the Veterans Administration Hospital in Little Rock, is one of six arthritis specialists who travel throughout Arkansas four times each year in the Arthritis Foundation's professional education program. The educational program is designed to instruct hospital medical personnel and physicians in the latest techniques and treatment of arthritis. The specialists discuss the latest findings concerning arthritis with the physicians and often advise them about special cases they are treating.

DR. MEEK DIRECTS NEW SERVICES

Dr. Gary Meek has been appointed the Medical Director of the new Outpatient Diagnostic and Treatment Center of St. Joseph's Mercy Medical Center in Hot Springs.

DR. LAWRENCE JOINS RUSSELLVILLE PHYSICIANS

Dr. Frank M. Lawrence has joined Drs. Ellis Gardner and Max Mobley in the practice of Ophthalmology in Russellville.

DR. SALTZMAN SPEAKS

Dr. Ben Saltzman of Little Rock was the featured speaker at a public forum on "Ethics and Value Issues of Medical Science on Aging" which was recently held in North Little Rock.

DR. ELLIS NAMED DIRECTOR

Dr. Jacob P. Ellis has been named director of the Area Health Education Center in El Dorado. Dr. Ellis is the Center's first full-time director.

DR. WILBUR TO PRACTICE IN MOUNTAIN HOME

Dr. Paul Wilbur has joined Dr. Robert Kerr in Family Practice at Mountain Home. Dr. Wilbur is a 1976 graduate of the University of Arkansas College of Medicine.

DR. KEAGY LOCATES

Dr. Charles L. Keagy, a General Practitioner, has joined the staff of the Eureka Springs Clinic. Before moving to Eureka Springs, Dr. Keagy practiced for twenty-four years in Delano, California.

NEW PHYSICIAN MOVES TO LAKE VILLAGE

Dr. Joseph E. Swanton recently opened his office for the practice of Obstetrics-Gynecology in Lake Village in the new Doctors Building. He formerly practiced in Senatobia, Mississippi.

FELLOWSHIPS AWARDED

The following physicians recently were named Fellows of the American Academy of Family Physicians at the annual convention in Las Vegas, Nevada: Dr. Edward P. Hammons of Forrest City, Drs. William R. Mashburn and George P. Queen of Hot Springs, and Drs. William H. Riley and Charles H. Rodgers of Little Rock.

OPEN HOUSE IN SHERWOOD

The Sherwood Family Practice Clinic in Sherwood recently held open house to acquaint the residents of that community with the facilities available. Drs. J. Roland Anderson and James L. Miller were on hand with other members of the staff to welcome guests.

DR. KOLB SPEAKS

Dr. W. Payton Kolb of Little Rock was the featured speaker at the Western Arkansas Mental Health Association meeting in Fort Smith on November 14th. Dr. Kolb also was the speaker at the first meeting of the Association twenty years ago.

DR. JANSEN PRESIDES

Dr. G. Thomas Jansen of Little Rock, 1976-77 president of the Southern Medical Association, presided at SMA's Annual Scientific Assembly November 6-9, in Dallas, Texas. Dr. Jansen also conducted installation ceremonies for SMA's incoming president, Dr. Andrew F. Giesen, Jr., of Fort Walton Beach, Florida.

DR. MARIS SPEAKS AT SEMINAR

Dr. Mahlon Maris of Harrison spoke on National Health Insurance to a group of professional journalists during a seminar at the University of Arkansas at Little Rock on December 3rd. The general topic of the seminar was the various issues confronting medical care in the State, with subjects including NHI, malpractice, cost of hospital care, and some of the ethical issues involved in patient records.

DES ARC GAINS PHYSICIANS

The community of Des Arc recently gained Dr. Minh Quang Le and his wife, Dr. Van Minh Nguyen, as full time physicians. They came to

Arkansas in 1975, and recently completed additional training at the University of Arkansas College of Medicine.

PHYSICIANS HAVE EXHIBIT

Dr. H. A. Ted Bailey and Dr. James J. Pappas of Little Rock had an exhibit at the American Academy of Ophthalmology and Otolaryngology meeting, October 2-6, in Dallas, Texas. The title of their exhibit was "Hearing Aid Dispensing Within the Otology-Audiology Clinic".

DR. WILLIAMS ASSISTS

Dr. Doyne Williams of Little Rock assisted in the surgical separation of conjoined infant girls at University Hospital in Little Rock in October.

Dr. Steve Golladay headed the surgical team which also included Dr. Hugh Burnett and Dr. Lee Forestiere.

DR. BAKER ENTERTAINER

Dr. Max Baker is more than a Fort Smith Psychiatrist. He is President of the Broadway Theatre League and has had acting and singing roles in numerous plays and productions in the city. He recently appeared in Fort Smith's Little Theatre production "Magic of Musical Broadway".

While attending college, he played tympani for the St. Louis Philharmonic Orchestra, and during his internship he sang with the Civic Choir in Rochester, New York. Dr. Baker is President of the Arkansas Psychiatric Association.



NEW MEMBERS

DR. JAMES C. DeGUEURCE, III

Dr. James C. DeGueurce, III, has been accepted into the membership of the Sebastian County Medical Society. Dr. DeGueurce was born in Shreveport, Louisiana, and received his pre-medical education from Louisiana State University in Baton Rouge, graduating with a B. S. degree in 1968. He received his M. D. degree from Louisiana State University at New Orleans in 1972. Dr. DeGueurce completed his internship and a residency in Obstetrics-Gynecology at the Confederate Memorial Medical Center in Shreveport.

Prior to moving to Arkansas, Dr. DeGueurce practiced in Ruston, Louisiana, for one year. Dr. DeGueurce is associated with Holt-Krock Clinic at 1500 Dodson Avenue in Fort Smith and specializes in Obstetrics-Gynecology.

JEFFERSON COUNTY'S NEW MEMBERS

The Jefferson County Medical Society has added the following new members to its membership roll:

DR. DONALD G. EAKIN was born in San Antonio, Texas. Dr. Eakin received his B. A. degree from the University of Texas at Austin, and was graduated from the University of Texas Health Sciences Center in 1977. He is participating in the Family Practice Residency Program at the Area Health Education Center in Pine Bluff.

DR. ROGER DALE HOUSE is a native of Fort Smith. He received his pre-medical education at Arkansas Polytechnic College in Russellville, receiving his B. A. degree in 1972. Dr. House was graduated from the University of Arkansas College of Medicine in 1977. He is participating in the Family Practice Residency Program at the Area Health Education Center in Pine Bluff.

DR. JOSEPH B. PIERCE was born in Pine Bluff. Dr. Pierce received his B. S. degree in biology from the University of Arkansas in Monticello in 1968. He attended the Autonomous University of Guadalajara from 1972 to 1976, and he was graduated from the University of Arkansas College of Medicine in 1977.

Dr. Pierce is participating in the Family Practice Residency Program at the Area Health Education Center in Pine Bluff.

PULASKI COUNTY ADDITIONS

Pulaski County Medical Society has added the following new members to its membership roll:

DR. ERNEST J. FERRIS. Born in Adams, Massachusetts, Dr. Ferris attended the College of the Holy Cross in Boston, Massachusetts, where he received his B. S. degree in 1954. He was graduated from Tufts University School of Medicine,

Boston, in 1958. Following his internship at Boston City Hospital, Dr. Ferris received training in Medicine at Boston Veterans Administration Hospital. From 1961 until 1964, he was in residency training in Radiology at Boston City Hospital.

Dr. Ferris is board certified by the American Board of Radiology. He is Professor and Chairman of the Department of Radiology at the University of Arkansas College of Medicine.

DR. ANTHONY C. HOOPER was born in Ancon, Panama Canal Zone. He received his B. S. degree from Arkansas State University in Jonesboro in 1967 and was graduated from the University of Arkansas College of Medicine in 1971. Dr. Hooper interned at Maricopa County General Hospital in Phoenix, Arizona. He was in Radiology residency at the University of Arkansas Medical Center from 1974 until 1977.

Dr. Hooper is certified by the American Board of Radiology. He is with the Department of Radiology at the University of Arkansas College of Medicine.

DR. RICHARD P. PUCKETT is a native of Taylorville, Illinois. Dr. Puckett obtained his

pre-medical education at the University of Illinois, Champaign, and Southern Illinois University, Carbondale, receiving his B. A. degree in Zoology in 1966. He was graduated from the University of Illinois College of Medicine, Chicago, in 1970. Dr. Puckett interned at the University of Iowa Hospital and Clinics, Iowa City.

He was in residency training in Radiology at the University of Arkansas Medical Center from 1974 to 1977. Dr. Puckett is associated with the Department of Radiology at the University of Arkansas College of Medicine.

DR. C. DON GREENWAY was born in Paragould. He received his pre-medical education at Arkansas State University in Jonesboro and was graduated from the University of Arkansas College of Medicine in 1973. Dr. Greenway is serving a Fellowship in Gastroenterology at the University of Arkansas Medical Center.

DR. ROBERT E. HOLDER was born in Memphis, Tennessee. He received his pre-medical education at Arkansas State University in Jonesboro, and graduated from the University of Arkansas College of Medicine in 1975. Dr. Holder is a resident in Family Practice at the Medical Center.



PROCEEDINGS OF SOCIETIES

MINUTES

COUNCIL OF THE ARKANSAS MEDICAL SOCIETY

The Council of the Arkansas Medical Society met at 11:00 A.M. on Sunday, September 18, 1977, in the Camelot Inn, Little Rock. President were: Burge, Kolb, Wynne, Shuffield, Lilly, Duzan, Osborne, J. Bell, Gray, P. Bell, Irwin, Jameson, Harris, Andrews, Clark, Orr, Jouett, Henry, Kutait, Wilkins, Chudy, Crow, Watson, Saltzman, P. Smith, Edgar Easley, George Mitchell, Robert Benafield, James Weber, Wendell Ross, James

Wellons, George Warren, Thomas Bruce, Stevenson Flanigan, Henry Kirby, Mrs. Kemal Kutait, Mr. Paul Schaefer, Mr. Robert Shoptaw, Mr. Eugene Warren, Mr. Mike Mitchell, Mr. Max Blake, Mr. LaMastus, C. C. Long, and Miss Richmond.

The Council transacted business as follows:

1. James Wellons, Chairman of the Annual Session Committee, reported to the Council on the plans for a revised format for the 1978 convention program.
2. Upon motion of P. Bell, the Council unanimously elected Herd Stone of Holly Grove as junior councilor for the third district.
3. Upon motion of Irwin, the Council named Ken Lilly of Fort Smith as the third member of the Budget Committee to fill a vacancy.
4. The Council voted to request that T. E. Townsend be asked to represent the Society on a panel program as part of a public forum on national health insurance being sponsored

by the Department of HEW in Little Rock on October 25.

5. Upon motion of Henry, the Council voted to work toward amendment of Act 330 of 1977 (Spinal Cord Disability Act) at the next session of the Legislature.
6. The Council approved appointments to the Medicaid Drug Utilization Review Committee of Blue Cross-Blue Shield as follows :
 - Northwest—Dr. Gene Ring, Dardanelle
Dr. Joe H. Lyford, Russellville
Alternate: Dr. Ralph Ingram,
 - Northeast—Dr. Charles G. Swingle,
Marked Tree
Dr. Asa Crow, Paragould
 - Central — —Dr. Julian Foster, Little Rock
Dr. Guy Farris, Little Rock
 - South — —Dr. Joseph Robinette,
Pine Bluff
Dr. R. H. Nunnally, Camden
7. George Mitchell discussed the status of Arkansas Blue Cross-Blue Shield implementation of its statewide fee schedule. He reported that Blue Shield plans to begin the new program January 1, 1978.
8. Following discussion of the Bureau of Health Insurance's experimental program for Arkansas, and upon motion of Kutait, the Council voted to appoint a committee to explore the possibility of negotiating with the Federal Government for an acceptable fee schedule for the physicians of Arkansas.
9. The Council received a report from the Medical School Committee regarding the admissions policy of the school. The report was received for information.
10. The Council approved actions of the Executive Committee as follows:
 - (a) approved date of September 18th for next Council meeting;
 - (b) suggested advice of Mr. Warren be obtained in drafting of statement on nurse practitioners;
 - (c) considered a proposed statement of policy for the Private Insurance Review Committee and voted to give further study to the statement;
 - (d) considered a request from the Medical School dean for nominees from the So-

ciety for the admissions committee of the school and voted to have each member of the Executive Committee submit nominations to the Dean after consultation with physicians in their home areas;

- (e) selected the date of November 27th for the winter meeting;
- (f) voted to have representatives of the Society appear at a Legislative committee meeting to oppose policies of the Spinal Commission.
11. The Council received for information a statement regarding nurse practitioners.
12. Upon motion of Wilkins, the Council approved a policy statement regarding the Private Insurance Review Committee (statement appears on following page).
13. The Council reconsidered its action regarding the president's expense allowance and, upon motion of Wilkins, directed that the Budget Committee include in each year's budget a proposed estimate for the president's travel allowance.
14. The Council rescinded its previous action regarding frequency of Council meetings and approved a motion by Wilkins that Council meetings be held quarterly or as needed.
15. Heard a recommendation by the chairman of the Medical Services Review Committee that there be a Cardiovascular Surgeon added to the specialty sub-committee for MSRC. Doyme Williams of Little Rock was selected for appointment to the sub-committee for that type of practice.
16. The Council deferred a decision on whether or not to pursue a program aimed toward a constitutional change for professional malpractice liability. The Legislative Committee is to report on this matter at the next meeting.
17. The Council received for information a manual prepared by the ad hoc Legislative Assistance Committee and voted to commend the committee for its work.
18. The Council heard a report from the president and legal counsel regarding Act 879 of 1977 (the so-called "Living Will" legislation).

APPROVED: John P. Burge, M.D.
Chairman of the Council

**PRIVATE INSURANCE REVIEW COMMITTEE
ARKANSAS MEDICAL SOCIETY
Policy Statement
of
Organization and Responsibility**

The committee was created by the Council for the purpose of providing peer review services to private insurance companies. The committee shall be composed of five members of the Arkansas Medical Society representing various fields of practice, including at least one general practitioner, one general surgeon, and one orthopaedic surgeon. Members shall be appointed for three-year staggered terms, with a maximum tenure of six years.

The committee is charged with reviewing claims submitted by private insurance companies and/or physicians concerning differences of opinion regarding reasonable fees for physicians' services. The committee will consider only those cases involving a disputed amount in excess of \$100. The committee decisions will be based on the "usual, customary, and reasonable" concept, taking into account specific circumstances of each

case. The committee will make its recommendation on the basis of personal experience and consultation with peers in the specialty field concerned. The committee may request further clarification of details of the case from either the physician or the insurance company. The committee's policy shall be that the determination of the applicable fee for any service is up to the individual physician and the physician's fee is the responsibility of the patient. The committee's opinion is advisory only and is not binding on either the insurance company or the physician. The committee shall not judge the appropriateness of the physician's fee, it shall only provide a recommendation to the insurance company and/or physician regarding a reasonable fee to assist in the determination of benefits under insurance coverage.

The Council shall determine the fee for services provided by the committee. Committee members shall be paid for time in committee meetings at the rate of \$35 per hour, plus out-of-town travel reimbursement at the rate of 15¢ per mile.

Insurance companies shall submit six copies of case files for which review is requested. The headquarters office of the Society will furnish administrative staff support for the committee.



ARKANSAS MEDICAL SOCIETY MEMBERSHIP ROSTER

December 1, 1977



HEADQUARTERS OFFICE:

**214 NORTH 12TH STREET
POST OFFICE BOX 1208
FORT SMITH, ARKANSAS 72902
TELEPHONE: 501 782-8218**

MEMBERSHIP ROSTER OF THE ARKANSAS MEDICAL SOCIETY 1977-78

Type of Practice	Member's Name	Address	Telephone Number
ARKANSAS COUNTY			
FP	Cross, Joseph E.	P. O. Box 472, DeWitt 72042	946-1676
FP	Daniel, Noble B.	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Guyer, G. L.	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Hestir, John M.	220 W. Gibson, DeWitt 72042	946-3637
FP	John, Milton C.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GS	Millar, Paul H.	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Morgan, Jerry D.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GP	McCracken, Elbert A.	509 S. Main, Stuttgart 72160	673-8571
GP	Northcutt, Carl E.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GP	Pritchard, Jack L.	1022 S. Main, Stuttgart 72160	673-2331
GP	Rasco, C. W., Jr.	111 S. Jackson, DeWitt 72042	946-3156
FP	Speer, Hoy B., Jr.	Route 1, Box 21-D, Stuttgart 72160	673-7211
R	Speer, Marolyn N.	2007 McCracken, Stuttgart 72160	673-3670
GP	Van Duyn, Thomas S.	P. O. Box 110, Stuttgart 72160	673-7291
#	Whitehead, R. H.	DeWitt	
ASHLEY COUNTY			
	Bradley, William G.	Santa Fe, New Mexico	
FP	Bui, Thieu	P. O. Box 248, Wilmet 71676	473-2274
GP	Burt, Frederick N.	310 N. Alabama, Crossett 71635	364-2137
FP	Cothern, William R.	P. O. Box 577, Crossett 71635	364-6111
	Edwards, Lawrence E.	Shalimar, Florida	
	Mask, Don L.	Alexander City, Alabama	
GP	Rankin, James D., Jr.	P. O. Box 232, Hamburg 71646	853-8271
FP	Ripley, C. E.	317 N. Alabama, Crossett 71635	364-5113
GP	Salb, Robert L.	113 Pine, Crossett 71635	364-2138
GP	Ton, De That	P. O. Box 248, Wilmet 71676	473-2274
FP	Toon, D. L.	310 N. Alabama, Crossett 71635	364-5762
BAXTER COUNTY			
CDS	Abraham, K. Simon	Green Valley Drive, Mountain Home 72653	425-6991
GP	Arnold, Carl B.	Salem Clinic, Salem 72576	895-3281
GP	Beard, Arthur L.	126 W. 6th, Mountain Home 72653	425-3131
FP	Bozeman, Jimmy G.	Highway 9 North, Salem 72576	895-2541
IM	Cheney, Maxwell G.	353 E. 8th, Mountain Home 72653	425-3125
R	DeLany, Clarence L.	Fulton County Hospital, Salem 72576	895-3124
PTH	Douglas, Donald S.	Route 5, Box 168, Mountain Home 72653	425-8411
GP	Ducker, David E.	P. O. Box 547, Salem 72576	895-3215
FP	Dunbar, James C.	P. O. Box 410, Mountain Home 72653	425-2020
R	Fontenot, Edwin, Jr.	P. O. Box 356, Bull Shoals 72619	445-4292
GS	Grasse, A. Meryl	P. O. Box 438, Calico Rock 72519	297-3726
FP	Guenther, John F.	126 W. 6th, Mountain Home 72653	425-3131
D	Hardin, Philip R.	Bull Shoals Hospital & Clinic, Bull Shoals 72619	455-4292 Ext. 35
GS	Hawkins, Michael L.	P. O. Box 349, Mountain Home 72653	425-6988
RD	Hildebrand, Eugene	Route 3, Box 190, Mountain Home 72653 (Res.)	491-5240
FP	Kelley, Lawrence A.	P. O. Box 356, Bull Shoals 72619	445-4292
GP	Kerr, Robert L.	P. O. Box 432, Mountain Home 72653	425-6971
OPH	Massey, James Y.	P. O. Drawer H, Mountain Home 72653	425-6026
FP	Moody, Michael N.	Highway 9 North, Salem 72576	895-2541
FP	Penly, Don H.	603 W. Market, Horseshoe Bend 72512	670-5147
PTH	Peterson, Hubert C.	Route 5, Box 168, Mountain Home 72653	425-8411
OPH	Sneed, John W., Jr.	P. O. Drawer H, Mountain Home 72653	425-6026
R	Tullis, Joe M.	P. O. Box 373, Mountain Home 72653	425-3141
FP	Wilson, Jack C.	353 E. 8th, Mountain Home 72653	425-3125
R	Wilson, M. Carolyn	P. O. Box 373, Mountain Home 72653	425-3141 Ext. 459
BENTON COUNTY			
PD	Allen, L. Barry	1014 W. Poplar, Rogers 72756	636-9234
FP	Arkins, James H.	216 N. Main, Bentonville 72712	273-9056
P	Ball, Eugene H.	Route 2, Box 53, Rogers 72756	636-8307
	Casebeer, R. L.	Sun City, Arizona	
GP	Clower, John D.	P. O. Box 737, Rogers 72756	636-2711
GP	Cohagan, Donald L.	408 N.W. "I," Bentonville 72712	273-5543
FP	Compton, Neil E.	1040 W. Walnut, Rogers 72756	636-2711
R	Cooper, Edward M.	North Chelsa Road, Bella Vista 72712	855-3781
R	Davies, Dale H.	13 Britten Circle, Bella Vista 72712 (Res.)	855-9477
PTH	Denman, David A.	12th and Walnut, Rogers 72756	636-0200
O8G	Elkins, James P.	1014 W. Poplar, Rogers 72756	636-0300
FP	Floyd, Louis C.	5 Professional Drive, Bella Vista 72712	855-3781
GP	Garrett, John L.	P. O. Box 369, Gravette 72736	787-5221
GP	Hall, Billy V.	P. O. Box 369, Gravette 72736	787-5221
PD	Harmon, Harry M.	1014 W. Poplar, Rogers 72756	636-9234
GP	Hitt, Jerry L.	P. O. Box 737, Rogers 72756	636-2711
FP	Howard, Willard H.	P. O. Box 30, Bentonville 72712	273-5551
FP	Hull, Robert R.	1301 W. Persimmon, Rogers 72756	636-7004
GP	Jennings, William E.	P. O. Box 737, Rogers 72756	636-2711
ORS	Kendrick, Carl M.	1225 W. Walnut, Rogers 72756	636-9607
R	Knapp, James R.	Rogers Memorial Hospital, Rogers 72756	636-0200
IM	Miles, Richard W.	P. O. Box 737, Rogers 72756	636-2711
FP	McCollum, E. N.	P. O. Box 127, Decatur 72722	752-3233
OPH	McNair, James R.	P. O. Box 1197, Rogers 72756	636-0238
GS	Pearson, Richard N.	1223 W. Walnut, Rogers 72756	636-5411
OPH	Pickens, James L.	P. O. Box 128, Rogers 72756	636-3220
OTO	Reese, Michael C.	1110 W. Elm, Rogers 72756	636-0110
PH	Robbins, Robert H.	122 See Street, Rogers 72756 (Res.)	975-1506
GP	Rollow, John A.	308 N.W. Sixth, Bentonville 72712	273-2497
GP	Ronald, Douglas C.	5 Professional Drive, Bella Vista 72712	855-3781
P	Steele, Marion A.	P. O. Box 677, Gentry 72734	736-8900
U	Turley, Jan Thomas	1217 W. Walnut, Rogers 72756	636-9669
GP	Warren, Grier D.	P. O. Box 737, Rogers 72756	636-2711
FP	Webb, William F.	P. O. Box 127, Decatur 72722	752-3233
GP	White, Harry M.	P. O. Box 737, Rogers 72756	636-2711
GP	Williamson, Robert R.	P. O. Box 369, Gravette 72736	787-5221
IM	Wilson, Stewart M.	P. O. Box 737, Rogers 72756	636-2711
BOONE COUNTY			
GS	Bell, Thomas E.	P. O. Box 1116, Harrison 72601	365-6418
R	Bennett, Joe D.	651 N. Spring, Harrison 72601	741-9667
P	Butts, Donald R.	P. O. Box 1214, Harrison 72601	741-3915
OTO	Chambers, Carlton L.	Bower at Pine, Harrison 72601	741-7684

Type of Practice	Member's Name	Address	Telephone Number
PD	Chambers, Elizabeth S.	Bower at Pine, Harrison 72601	741-7684
FP	Daniel, Charles D.	P. O. Box E, Marshall 72650	448-3327
U	Ferguson, Noel F.	P. O. Box 1276, Harrison 72601	741-9481
GP	Fowler, Ross E.	215 W. Stephenson, Harrison 72601	365-8651
IM	Garland, William J., Jr.	P. O. Box 1077, Harrison 72601	741-3459
GS	Gladden, Jean C.	P. O. Box 1118, Harrison 72601	741-8275
GP	Haller, Harold H.	P. O. Box 327, Jasper 72641	446-2203
GP	Haller, Nancy T.	P. O. Box 327, Jasper 72641	446-2203
GS	Hoberock, Thomas R.	651 N. Spring, Harrison 72601	741-9858
TS	Hudson, William A.	P. O. Box 237, Jasper 72641	446-2489
FP	Jackson, Ulys	118 S. Pine, Harrison 72601	365-5333
GP	Kirby, Henry V.	651 N. Spring, Harrison 72601	365-5022
OPH	Kuharich, Richard M.	651 N. Spring, Harrison 72601	741-9492
FP	Langston, Robert H.	520 N. Spring, Harrison 72601	741-8286
ORS	Ledbetter, Charles A.	224 Erie, Harrison 72601	741-8289
OBG	Mahoney, Paul L., Jr.	P. O. Box 1241, Harrison 72601	741-7334
FP	Maris, Mahlon O.	P. O. Box 759, Harrison 72601	741-8247
FP	Martin, J. David	P. O. Box 160, Harrison 72601	741-5303
FP	McCoy, O. B.	P. O. Box 578, Harrison 72601	365-3592
#	Owens, D. L.	Harrison	
FP	Reese, Ronald R.	P. O. Box 759, Harrison 72601	741-8247
R	Robinson, G. Allen	P. O. Box 728, Harrison 72601	365-2763
GP	Scroggins, Sam J.	651 N. Spring, Harrison 72601	741-6373
OBG	Simpson, Thomas J.	620 N. Spring, Harrison 72601	741-2441
IM	Smith, Van	P. O. Box 1077, Harrison 72601	741-3459
R	Thomas, Leo D.	651 N. Spring, Harrison 72601	741-9667
ORS	Vowell, Don R.	224 Erie, Harrison 72601	741-8289
FP	Wallace, Oliver	P. O. Drawer AA, Green Forest 72638	438-5218
ORS	Williams, Ralph E.	302 Rice, Berryville 72616	423-3338
GS	Williams, Rhys A.	P. O. Box 1118, Harrison 72601	741-8275
FP	Wilson, Joe B.	520 N. Spring, Harrison 72601	741-8286
BRADLEY COUNTY			
GP	Crow, Merl T.	205 E. Church, Warren 71671	226-5811
FP	Marsh, James W.	302 N. Main, Warren 71671	226-2112
FP	Whaley, W. C.	205 E. Church, Warren 71671	226-5811
FP	Wynne, George F.	113 W. Cypress, Warren 71671	226-2844
CHICOT COUNTY			
GS	Burge, John H.	Lake Village Clinic, Lake Village 71653	265-5343
GS	Burge, John P.	Lake Village Clinic, Lake Village 71653	265-5343
GP	Russell, John R.	Lake Village Clinic, Lake Village 71653	265-5343
#	Smiley, George W.	Lake Village	
GP	Smith, Maior E.	P. O. Box 310, Dermott 71638	538-5717
GP	Talbot, Allen G.	Lake Village Clinic, Lake Village 71653	265-5343
GP	Thomas, H. W.	P. O. Box 250, Dermott 71638	538-3979
GP	Weaver, William J.	P. O. Box Q, Eudora 71640	355-4376
GP	Wilson, Thomas C.	115 E. Peddicord, Dermott 71638	538-5253
CLARK COUNTY			
GS	Anderson, P. R.	P. O. Box 758, Arkadelphia 71923	246-2431
FP	Balay, John W.	416 Main, Arkadelphia 71923	246-2431
GS	Blackmon, James T.	1008 Pine, Arkadelphia 71923	246-6734
RD	Clark, Charles G.	1108 Huddleston, Arkadelphia 71923 (Res.)	246-4493
FP	Gary, Eli	P. O. Box 475, Arkadelphia 71923	246-2491
PH	Kennedy, Jack W.	Clark County Health Dept., Arkadelphia 71923	246-4471
FP	Luck, Herman D.	Route 1, Box 25, Arkadelphia 71923	246-2471
FP	Mann, R. Jerry	416 Main, Arkadelphia 71923	246-2431
NP	Parsons, Earl	117 N. 11th, Arkadelphia 71923	246-8344
FP	Peeples, George R.	305 E. Main, Gurdon 71743	353-4422
FP	Stover, Curtis E.	204 N. 26th, Arkadelphia 71923	246-5846
RD	Toombs, Vernon L.	Route 2, Box 312-4, Gurdon 71743 (Res.)	353-2935
CLEBURNE COUNTY			
OPH	Baldrige, Max	P. O. Box 431, Heber Springs 72543	362-3479
RD	Barnett, James C.	Front St., Heber Springs 72543 (Res.)	362-2786
GP	Barnett, Michael E.	Fourth and Spring, Heber Springs 72543	362-3143
FP	Cranford, Harrol L.	401 W. Searcy, Heber Springs 72543	362-2414
GP	Hinkle, Richard A.	P. O. Box 128, Quitman 72131	589-2600
FP	McClanahan, D. H.	401 W. Searcy, Heber Springs 72543	362-2414
FP	Poff, Nathan L.	401 W. Searcy, Heber Springs 72543	362-2414
R	Scruggs, Joe B.	P. O. Box 510, Heber Springs 72543	362-3121 Ext. 45
IM	Sharp, Jack V.	P. O. Box 70, Heber Springs 72543	362-3316
GP	Smith, W. Wayne	P. O. Box 272, Heber Springs 72543	362-2451
FP	Wells, William M.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
COLUMBIA COUNTY			
FP	Alexander, John E.	707 N. Washington, Magnolia 71753	234-2288
FP	Farmer, John M.	104 E. Columbia, Magnolia 71753	234-2230
FP	Griffin, Rodney L.	123 N. Jackson, Magnolia 71753	234-3040
R	Hunter, Robert W.	Rt. 4, 2602 Crestview, Magnolia 71753 (Res.)	234-6117
GP	Jones, T. H.	P. O. Box 387, Waldo 71770	693-5634
FP	Kelley, Charles W.	1327 N. Washington, Magnolia 71753	234-5544
GS	McMahan, H. Scott	P. O. Box 647, Magnolia 71753	234-3340
FP	Pulliq, Thomas A.	105 W. North, Magnolia 71753	234-8570
GP	Ruff, John L.	104 Hospital Rd., Magnolia 71753	234-2144
GS	Rushton, Joseph F.	219 N. Washington, Magnolia 71753	234-1148
GP	Strange, Vance M.	P. O. Box 67, Stamps 71860	533-2438
FP	Walker, Jack T.	123 N. Jackson, Magnolia 71753	234-3040
FP	Weber, C. H.	110 W. North, Magnolia 71753	234-4411
RD	Wilson, John H.	904 Lawton Circle, Magnolia 71753 (Res.)	234-1545
CONWAY COUNTY			
FP	Buchanan, Thomas L.	200 S. Moose, Morrilton 72110	354-4637
FP	Evans, Clifford L.	P. O. Box 677, Morrilton 72110	354-2456
FP	Hickey, Thomas H.	1109 E. Broadway, Morrilton 72110	354-4624
GP	Owens, Gastor B.	P. O. Box 536, Morrilton 72110	354-4505
FP	Wells, Charles F.	601 S. Moose, Morrilton 72110	354-2123
GP	White, Henry B.	P. O. Box 230, Morrilton 72110	354-4623

Type of Practice	Member's Name	Address	Telephone Number
CRAIGHEAD-POINSETT COUNTY			
D.	Alston, Herman D.	816 Cobb, Jonesboro 72401	932-4570
R.	Aston, J. Ken	2000 Timber Trails, Jonesboro 72401 (Res.)	935-5727
OBG.	Basinger, James W.	P. O. Box 1478, Jonesboro 72401	935-3990
RD.	Bell, William K.	517 W. Jefferson, Jonesboro 72401 (Res.)	932-9113
OBG.	Berry, Donald M.	P. O. Box 1478, Jonesboro 72401	935-3990
OPH.	Blanton, M. E.	P. O. Box 1268, Jonesboro 72401	932-8433
P.	Blaylock, Jerry D.	505 E. Matthews, Jonesboro 72401	935-0360
U.	Bogaev, Leonard R.	812 Cobb, Jonesboro 72401	932-2926
IM.	Burns, Richard G.	505 E. Matthews, Jonesboro 72401	932-1198
IM.	Clopton, Owen H., Jr.	505 E. Matthews, Jonesboro 72401	932-1198
HEM.	Cohen, Robert S.	223 E. Jackson, Jonesboro 72401	972-0063
	Davis, Thomas N., III	Farmington, Missouri	
ORS.	Dickson, Glenn E.	505 E. Matthews, Jonesboro 72401	932-1820
OTO.	Eddington, William R.	505 E. Matthews, Jonesboro 72401	935-8132
ORS.	Edwards, Harvey O.	924 S. Main, Jonesboro 72401	972-0110
GP.	Elkhoa, Abed A.	102 W. Broad, Lepanto 72354	475-2977
GS.	Faris, John C.	907 Union, Jonesboro 72401	935-8470
FP.	Forestiere, A. J.	P. O. Box 106, Harrisburg 72432	578-5443
R.	Garner, William L.	224 E. Matthews, Jonesboro 72401	932-7458
OTO.	Gossett, Clarence E.	505 E. Matthews, Jonesboro 72401	935-8132
R.	Green, William R.	828 Cobb, Jonesboro 72401	932-0639
IM.	Guinn, Donald R.	505 E. Matthews, Jonesboro 72401	932-1198
P.	Guthrie, Alastair N.	2711 S. Caraway Rd., Jonesboro 72401	932-0692
GP.	Harper, T. P.	P. O. Box C, Monette 72447	486-2131
GP.	Hogue, Ernest L.	505 E. Matthews, Jonesboro 72401	932-8127
R.	Holland, James A.	P. O. Box 1124, Jonesboro 72401	932-7458
P.	James, Frank M.	2920 McClellan, Jonesboro 72401	972-4039
AN.	Johnson, Larry H.	818 Cobb, Jonesboro 72401	932-4211
PD.	Johnson, Roehl W.	505 E. Matthews, Jonesboro 72401	935-6012
	Jones, R. J.	Barksdale AFB, Louisiana	
GS.	Keisker, H. W.	505 E. Matthews, Jonesboro 72401	932-4581
PD.	Kemp, Charles E.	505 E. Matthews, Jonesboro 72401	935-6012
OBG.	Kirkley, John B.	P. O. Box 1478, Jonesboro 72401	935-3990
PTH.	Kroe, Donald J.	411 E. Matthews, Jonesboro 72401	932-7430
FP.	Lawrence, Robert O.	417 E. Matthews, Jonesboro 72401	972-0550
GP.	Ledbetter, Joseph W.	804 S. Church, Jonesboro 72401	935-5454
ORS.	Mahon, Larry E.	810 Jeter Dr., Jonesboro 72401	935-9123
AN.	Mitchell, George E.	818 Cobb, Jonesboro 72401	932-4211
FP.	Modelevsky, A. C.	P. O. Box 1427, Jonesboro 72401	932-0980
RD.	McCurry, John H.	2631 S. 12th, St. Louis, Missouri 63118	NF
OPH.	McKee, Bobby E.	505 E. Matthews, Jonesboro 72401	935-6396
EM.	Peeler, M. O.	224 E. Matthews, Jonesboro 72401	972-4288
GP.	Plunk, Hermie G.	5005 E. Nettleton, Jonesboro 72401	932-1181
GP.	Poff, Joseph H.	401 W. Searcy, Searcy 72543	362-2414
GP.	Poole, Grover D.	P. O. Box 10, Jonesboro 72401	932-2634
P.	Price, Edwin F.	P. O. Box 5033, Jonesboro 72401	972-0290
PD.	Rainwater, W. T.	505 E. Matthews, Jonesboro 72401	935-6012
GP.	Raney, Bascom P.	403 E. Matthews, Jonesboro 72401	935-5529
FP.	Reynolds, Roland C.	801 Osler Dr., Jonesboro 72401	932-2423
P.	Richardson, William W.	2920 McClellan, Jonesboro 72401	972-4039
FP.	Robinette, James M.	801 Osler Dr., Jonesboro 72401	932-2423
D.	Rogers, James F.	505 E. Matthews, Jonesboro 72401	935-4755
GS.	Sanders, James W.	505 E. Matthews, Jonesboro 72401	932-4875
U.	Scriber, Ladd J.	812 Cobb, Jonesboro 72401	932-2926
RD.	Shanlever, R. C.	1103 Wilkins, Jonesboro 72401 (Res.)	932-2450
ORS.	Shanlever, William T.	924 S. Main, Jonesboro 72401	935-9123
IM.	Shepherd, W. F.	505 E. Matthews, Jonesboro 72401	932-8121
GP.	Smith, Floyd A., Jr.	415 W. Main, Trumann 72472	483-6411
GP.	Smith, Vestal B.	P. O. Box 614, Marked Tree 72365	358-2811
AN.	Sparks, E. Barlett	818 Cobb, Jonesboro 72401	932-4211
PTH.	Stainton, Robert M., Jr.	411 E. Matthews, Jonesboro 72401	932-7430
FP.	Stallings, Joe H.	417 E. Matthews, Jonesboro 72401	972-0550
EM.	Starnes, C. Wayne	224 E. Matthews, Jonesboro 72401	972-4288
OBG.	St. Clair, John T., Jr.	505 E. Matthews, Jonesboro 72401	935-3990
RD.	Stroud, Paul T.	P. O. Box 818, Jonesboro 72401 (Res.)	932-3284
FP.	Swingle, Charles G.	P. O. Box 267, Marked Tree 72365	358-2036
GP.	Taylor, G. Wayne	211 E. Matthews, Jonesboro 72401	972-1570
FP.	Tedder, Michael E.	801 Osler Dr., Jonesboro 72401	932-2423
FP.	Thomas, James F.	Southgate Plaza, Jonesboro 72401	935-8510
OPH.	Utley, Phillip M.	920 S. Main, Jonesboro 72401	932-8221
FP.	Verser, Joe	P. O. Box 106, Harrisburg 72432	578-5443
PTH.	Vollman, Don B., Jr.	411 E. Matthews, Jonesboro 72401	932-7430
OPH.	Webb, James W.	920 S. Main, Jonesboro 72401	932-8221
U.	Williams, E. Walden	812 Cobb, Jonesboro 72401	932-2926
GS.	Wilson, Francis M.	505 E. Matthews, Jonesboro 72401	932-1987
PTH.	Wilson, Joseph T., Jr.	411 E. Matthews, Jonesboro 72401	932-5150
GP.	Winters, W. L.	801 Osler Dr., Jonesboro 72401	932-2423
GP.	Wisdom, G. D.	505 E. Matthews, Jonesboro 72401	932-8121

CRAWFORD COUNTY

FP.	Darden, L. R.	P. O. Box 623, Van Buren 72956	474-2336
FP.	Durmon, Beuford T.	1103 Chestnut, Van Buren 72956	474-2361
GP.	Edds, Millard C.	1103 Chestnut, Van Buren 72956	474-2361
FP.	Hopkins, Ed G.	1103 Chestnut, Van Buren 72956	474-2361
GP.	Parkhurst, Yale E.	1103 Chestnut, Van Buren 72956	474-2361
GP.	Shearer, F. E.	P. O. Box 458, Alma 72921	474-9539

CRITTENDEN COUNTY

R.	Bequette, Margaret A. T.	P. O. Box 248, West Memphis 72301	735-1500
	Bernstein, Lawrence D.	Muncie, Indiana	
FP.	Croom, D. Wayne	P. O. Box 518, West Memphis 72301	735-3846
FP.	Deneke, Milton D.	P. O. Box 607, West Memphis 72301	735-1170
OBG.	Ferguson, T. Murray	200 S. Rhodes, West Memphis 72301	735-2150
OBG.	Ford, Robert C., Jr.	200 S. Rhodes, West Memphis 72301	735-2150
GP.	Hamilton, Ralph B.	300 S. Rhodes, West Memphis 72301	735-1170
PD.	Haynes, Max G.	228 Tyler, West Memphis 72301	735-0833
GS.	Jay, Gilbert D., III	200 S. Rhodes, West Memphis 72301	735-4612
OPH.	Kennedy, Keith B.	P. O. Box 489, West Memphis 72301	735-7680
GS.	Lanford, H. G.	308 S. Rhodes, West Memphis 72301	735-3664
FP.	Lubin, Milton	200 S. Rhodes, West Memphis 72301	735-3919
FP.	Miller, James L.	300 S. Rhodes, West Memphis 72301	735-1170
IM.	Peoples, Chester W.	228 Tyler, West Memphis 72301	735-1973

Type of Practice	Member's Name	Address	Telephone Number
	Piat, Robert D.	Berlin, Wisconsin	
GS	Schoettle, Glenn P.	308 S. Rhodes, West Memphis 72301	735-3664
FP	Smith, Bedford W.	300 S. Rhodes, West Memphis 72301	735-1170
IM	Taylor, C. Herbert, Jr.	200 S. Rhodes, West Memphis 72301	735-2071
R	Utey, L. Thomas	P. O. Box 248, West Memphis 72301	735-1500 Ext. 218
OBG	Westbrook, H. Wade	200 S. Rhodes, West Memphis 72301	735-2150
FP	Wright, William J.	1605 2nd, Earle 72331	735-4400
FP	Young, S. Morris	228 Tyler, West Memphis 72301	732-4690
CROSS COUNTY			
GP	Beaton, K. E.	P. O. Box 158, Wynne 72396	238-2321
GP	Bethell, Robert D.	P. O. Box 158, Wynne 72396	238-2321
FP	Burks, Willard G.	P. O. Box 158, Wynne 72396	238-2321
FP	Crain, Vance J.	P. O. Box 158, Wynne 72396	238-2321
GP	Hayes, Robert A.	P. O. Box E, Wynne 72396	238-3261
FP	Jacobs, James R.	P. O. Box E, Wynne 72396	238-7360
FP	Young, J. Hosea	P. O. Box E, Wynne 72396	238-3261
DALLAS COUNTY			
FP	Delamore, John H.	P. O. Box 351, Fordyce 71742	352-7117
FP	Dobson, Jack T.	P. O. Box B16, Fordyce 71742	352-5125
FP	Howard, Don G.	P. O. Box 506, Fordyce 71742	352-3151
FP	Nutt, Hugh A.	P. O. Box 506, Fordyce 71742	352-5144
GP	Taylor, George D.	P. O. Box 36, Sparkman 71763	678-2406
DESHA COUNTY			
FP	Harris, Howard R.	207 S. Elm, Dumas 71639	382-4425
GP	Hoagland, Robert A.	145 W. Waterman, Dumas 71639	382-4878
GP	Moss, Swan B.	P. O. Box 652, McGehee 71654	222-3141
FP	Prosser, Robert L., III	P. O. Box 707, McGehee 71654	222-6131
FP	Robinson, Guy U.	207 S. Elm, Dumas 71639	382-4425
GP	Turney, Lonnie R.	101 S. 3rd, McGehee 71654	222-4044
FP	Young, James E.	P. O. Box 707, McGehee 71654	222-6131
DREW COUNTY			
FP	Binns, Van C.	203 E. Trotter, Monticello 71655	367-3531
FP	Busby, Arlee K.	733 Doctors Dr., Monticello 71655	367-3246
#	Crane, Henry A., Jr.	Monticello	
GP	Hicks, Charles E.	232 S. Main, Monticello 71655	367-2473
FP	Holder, J. B.	Qtrs. 14E, VA Hospital, North Little Rock 72114 (Res.)	372-3505
GP	Price, J. P.	232 S. Main, Monticello 71655	367-2475
FP	Wallick, Paul A.	P. O. Box 660, Monticello 71655	367-6868
FP	Wilson, Harold F.	P. O. Box 660, Monticello 71655	367-6867
FAULKNER COUNTY			
RD	Archer, Charles A., Jr.	411 Western Ave., Conway 72032 (Res.)	329-3412
#	Banister, Benjamin F., Jr.	Conway	
FP	Banister, Bob G.	923 Parkway, Conway 72032	329-3824
AN	Beasley, Margaret D.	P. O. Box 404, Conway 72032	329-8742
FP	Beasley, T. O.	P. O. Box 1386, Conway 72032	329-2946
ADM	Benafield, Robert B.	P. O. Box 2181, Little Rock 72203	378-2164
GP	Daniel, Sam V.	574 Locust, Conway 72032	329-6111
FP	Dobbs, John C.	P. O. Box 1327, Conway 72032	329-2948
FP	Doss, John R.	P. O. Box 1386, Conway 72032	329-2946
RD	Downs, J. H.	P. O. Box 56, Nashville 71852 (Res.)	845-2265
IM	Furlow, William C.	P. O. Box 1367, Conway 72032	327-1325
OPH	Gardner, Dan R.	1504 Caldwell, Conway 72032	327-4444
R	Garrison, James S.	College & Western, Conway 72032	329-3831 Ext. 171
FP	Gordy, Fred, Jr.	552 Locust, Conway 72032	329-6881
OPH	Magie, Jimmie J.	P. O. Box 1284, Conway 72032	327-4444
FP	Ross, Rex W.	P. O. Box 1327, Conway 72032	329-2948
FP	Sessions, Leslie H.	923 Parkway, Conway 72032	329-3824
FP	Smith, John D.	923 Parkway, Conway 72032	329-3824
FRANKLIN COUNTY			
GP	Calaway, Robert L.	P. O. Box C, Mulberry 72947	997-3941
FP	Ewing, Jon R.	604 W. Commercial, Ozark 72949	667-4111
FP	Ewing, Rebecca F.	604 W. Commercial, Ozark 72949	667-4111
FP	Gibbons, David L.	P. O. Box 136, Ozark 72949	667-2285
ADM	Long, C. C.	P. O. Box 1208, Fort Smith 72902	782-9218
GARLAND COUNTY			
IM	Adams, Frank M.	236 Central, Hot Springs 71901	623-8751
IM	Arnold, W. O.	1002 Central Tower Bldg., Hot Springs 71901	624-1397
OTO	Atkinson, Robert H.	303 Central Tower Bldg., Hot Springs 71901	623-6101
R	Bohnen, Loren O.	901 W. Grand, Hot Springs 71901	623-6693
IM	Bond, John B., Jr.	101 Whittington, Hot Springs 71901	321-2229
OTO	Borg, Robert V.	4409 Central, Hot Springs 71901	624-5422
OPH	Bracken, Ronald J.	505 W. Grand, Hot Springs 71901	624-4478
GS	Brunner, John H.	101 Whittington, Hot Springs 71901	321-2229
U	Burrow, Thomas E.	903 W. Grand, Hot Springs 71901	623-8110
GS	Burton, Frank M.	101 Whittington, Hot Springs 71901	321-2229
GS	Chamberlain, Joe W.	330 6th, Hot Springs 71901	623-4477
GS	Chamberlain, Warren W.	330 6th, Hot Springs 71901	623-4477
RHU	Clardy, E. K.	P. O. Box 850, Hot Springs 71901	624-1281
RD	Daniel, R. L.	105 Lowery, Apt. 1203, Hot Springs 71901 (Res.)	623-9753
GP	Davis, James H.	P. O. Box 315, Mount Ida 71957	867-2175
IM	Dembinski, T. Henry	804 1/2 Central, Hot Springs 71901	623-9781
OPH	Dodson, John W.	505 W. Grand, Hot Springs 71901	623-4541
ORS	Durham, Thomas M.	505 W. Grand, Hot Springs 71901	623-7717
GS	Eisele, W. Martin	101 Whittington, Hot Springs 71901	321-2229
R	Fore, Robert W.	901 W. Grand, Hot Springs 71901	623-6693
GP	Fotioo, George J.	505 Central Tower Bldg., Hot Springs 71901	623-5121
GS	French, James H.	101 Whittington, Hot Springs 71901	321-2229
EM	Frye, Ivan L.	9600 W. 12th, Little Rock 72205	227-2300
FP	Gardial, J. Richard	125 Greenwood, Hot Springs 71901	623-3373
FP	Gardner, James L.	125 Greenwood, Hot Springs 71901	623-0904
RD	Garner, Onyx P.	6808 Central, Hot Springs 71901 (Res.)	525-8752
GP	Graham, Richard F.	505 W. Grand, Hot Springs 71901	623-4391
NS	Guota, Surinder N.	606 Central Tower Bldg., Hot Springs 71901	321-1329
OBG	Haggard, John L.	101 Whittington, Hot Springs 71901	321-2229

Type of Practice	Member's Name	Address	Telephone Number
OTO	Harper, Edwin L.	409 Central, Hot Springs 71901	624-5422
RD	Hebert, Gaston A.	302 Prospect, Hot Springs 71901 (Res.)	623-7216
GS	Hill, Robert L.	905 W. Grand, Hot Springs 71901	623-9581
FP	Hollis, Thomas H.	125 Greenwood, Hot Springs 71901	623-3373
IM	Hoyt, Jerry L.	328 Quapaw, Hot Springs 71901	624-4581
D	Irwin, William G.	600-I Main, Hot Springs 71901	321-9455
GYN	Jackson, Haynes G.	P. O. Box 2067, Hot Springs 71901	623-6628
CD	Jayaraman, K. K.	2513 Malvern, Hot Springs 71901	321-2513
PTH	Jayaraman, V. Devi	P. O. Box 1460, Hot Springs 71901	623-2518
OPH	Johnston, Gaither C.	99 Little Pine, Hot Springs 71901	624-7106
GP	Keadle, William R.	408 #8 Highway, Glenwood 71943	356-3155
RD	King, Leeman H.	610 Ramble, Hot Springs 71901 (Res.)	623-8185
AN	Klugh, Walter G., Jr.	300 St. Louis Place, Hot Springs 71901	623-9216
RD	Klugh, Walter G., Sr.	230 Pecan, Hot Springs 71901 (Res.)	623-2540
PTH	Lee, W. R.	P. O. Box 1460, Hot Springs 71901	623-2518
GP	Lovell, Clarence R.	414 Albert Pike, Hot Springs 71901	624-1211
IM	Maruthur, Gopakumar	805 Central Tower Bldg., Hot Springs 71901	623-1545
IM	Mashburn, William R.	99 Little Pine, Hot Springs 71901	623-4453
GS	Meek, Gary N.	905 W. Grand, Hot Springs 71901	623-9581
U	Millwee, Robert H.	903 W. Grand, Hot Springs 71901	623-8110
ORS	Murray, DuBose	505 W. Grand, Hot Springs 71901	623-7717
ORS	McConkie, Stuart B.	715 W. Grand, Hot Springs 71901	623-5300
OBG	McCrary, Robert F.	505 W. Grand, Hot Springs 71901	321-2217
PD	McFarland, Louis R.	211 Hobson, Hot Springs 71901	321-1314
PD	Newton, Doane M.	236 Woodbine, Hot Springs 71901	321-2546
OBG	Panpas, Dena P.	101 Whittington, Hot Springs 71901	321-2229
GP	Parkerson, Carl R.	300 Woodbine, Hot Springs 71901	624-3327
GP	Parkerson, Cecil W.	1421 Central, Hot Springs 71901	624-3341
IM	Patterson, Ralph M.	231 Central, Hot Springs 71901	624-5567
AN	Peeples, Raymond E.	310 Park, Hot Springs 71901	624-3868
GP	Power, Allyn R.	236 Central, Hot Springs 71901	623-3102
FP	Queen, George P.	125 Greenwood, Hot Springs 71901	623-3373
OBG	Rainwater, W. S.	101 Whittington, Hot Springs 71901	321-2229
GP	Reed, Lon E.	1315 Central, Hot Springs 71901	624-1207
IM	Rogers, I. David	125 Greenwood, Hot Springs 71901	623-3373
PD	Rosenzweig, Joseph L.	P. O. Box 1358, Hot Springs 71901	624-4411
IM	Rowland, E. Driver	110 Hawthorne, Hot Springs 71901	623-5581
GS	Sammons, Vernon E., Jr.	905 W. Grand, Hot Springs 71901	623-9581
RD	Sanders, Hallman E.	220 Bafanridge, Hot Springs 71901 (Res.)	624-2869
GP	Seifert, Kenneth A.	P. O. Box 149, Hot Springs Village 71901	922-0540
	Smith, Oliver A.	Houston, Texas	
R	Springer, M. R., Jr.	901 W. Grand, Hot Springs 71901	623-6693
R	Springer, William Y.	901 W. Grand, Hot Springs 71901	623-6693
RD	Stough, D. B.	819 Prospect, Hot Springs 71901 (Res.)	623-4265
D	Stough, D. B., III.	99 Little Pine, Hot Springs 71901	624-0673
OPH	Thomas, Wallace A.	P. O. Drawer D, Hot Springs 71901	624-1204
OBG	Thompson, Thomas P., Jr.	101 Whittington, Hot Springs 71901	321-2229
PD	Trieschmann, John W.	236 Woodbine, Hot Springs 71901	321-2546
U	Wade, H. King, Jr.	231 Central, Hot Springs 71901	624-5641
GS	Wright, Jack	211 Hobson, Hot Springs 71901	623-6677

GRANT COUNTY

FP	Clark, Curtis B.	200 S. Rose, Sheridan 72150	942-3155
GP	Irvin, Jack M.	205 W. High, Sheridan 72150	942-3171
RD	Kelly, Miles F.	P. O. Box 247, Sheridan 72150 (Res.)	942-4152
FP	Paulk, Clyde D.	200 S. Rose, Sheridan 72150	942-3155

GREENE-CLAY COUNTY

R	Baker, Augustus J.	P. O. Box 339, Paragould 72450	236-7733 Ext. 177
GP	Baker, Clark M.	115 W. Court, Paragould 72450	236-6356
PTH	Boggs, Dwight F.	#1 Medical Drive, Paragould 72450	239-4046
FP	Bonner, J. Darrell	1015 W. Kingshighway, Paragould 72450	239-4076
GP	Boyles, Gerald D.	602 West 2nd, Corning 72422	857-3589
FP	Bradsher, Omer E.	#1 Medical Drive, Paragould 72450	236-6956
FP	Collier, George H., Jr.	130 S. 14th, Paragould 72450	236-6946
FP	Collier, Jon D.	130 S. 14th, Paragould 72450	236-6946
FP	Crow, Asa A.	#1 Medical Drive, Paragould 72450	239-8504
GS	Duckworth, Gordon L.	425 W. Jackson, Piggott 72454	598-2237
FP	Duckworth, Hillard R.	425 W. Jackson, Piggott 72454	598-2237
FP	Futrell, J. B.	414 W. 2nd, Rector 72461	595-3332
GP	Harper, Bland R.	P. O. Box C, Monette 72447	486-2131
ORS	Hazard, Marion P.	#1 Medical Drive, Paragould 72450	236-6996
FP	Hobby, George A.	#1 Medical Drive, Paragould 72450	239-8579
GS	Lawson, J. Larry	#1 Medical Drive, Paragould 72450	239-5916
AN	Martin, Richard O.	P. O. Box 339, Paragould 72450	236-7733 Ext. 194
GP	Mitchell, Bennie E.	901 W. Kingshighway, Paragould 72450	239-8576
FP	Muse, Jerry L.	425 W. Jackson, Piggott 72454	598-2237
RD	McKelvey, Earle D.	319 W. Highland, Paragould 72450 (Res.)	236-3252
FP	Page, Billie C.	#1 Medical Drive, Paragould 72450	239-4011
FP	Price, Robert E.	#1 Medical Drive, Paragould 72450	239-3366
R	Purcell, Donald I.	P. O. Box 339, Paragould 72450	239-8431
PTH	Richmond, Jack G.	P. O. Box 339, Paragould 72450	236-7733
GS	Sellers, John R.	#1 Medical Drive, Paragould 72450	239-5926
FP	Shedd, Leonus L.	1015 W. Kingshighway, Paragould 72450	239-4076
FP	Watson, Samuel D.	901 W. Kingshighway, Paragould 72450	236-8591
FP	Williams, Jacob M.	1015 W. Kingshighway, Paragould 72450	239-4077

HEMPSTEAD COUNTY

GP	Branch, James W.	426 S. Main, Hope 71801	777-4636
FP	Harris, C. Lynn	P. O. Box 10, Hope 71801	777-2321
GP	Harris, Lowell O.	P. O. Box 550, Hope 71801	777-2131
FP	Holt, Forney G.	300 E. 6th, Texarkana 75501	774-3211
GP	Martindale, James G.	116 S. Main, Hope 71801	777-3464
GP	Martindale, Jud B.	116 S. Main, Hope 71801	777-3464
FP	McKenzie Jim	P. O. Box 10, Hope 71801	777-2321
R	Stevens, David G.	1900 S. Main, Hope 71801	777-2323
FP	Wright, George H.	202 S. Pine, Hope 71801	777-6722

HOT SPRING COUNTY

GP	Brashears, Larry B.	1234 S. Main, Malvern 72104	332-5245
FP	Cobb, Russell W.	1420 Potts, Malvern 72104	332-3112
GP	Cole, John W.	725 E. Page, Malvern 72104	332-5641

Type of Practice	Member's Name	Address	Telephone Number
FP	Ellis, C. Randolph	1004 S. Main, Malvern 72104	332-6941
GP	Kersh, Noah B.	1518 McBee, Malvern 72104	337-7533
GP	McCray, Raymond V.	214 E. Highland, Malvern 72104	332-2704
FP	Peters, Claude F.	1420 Potts, Malvern 72104	332-2521
GP	Vaughan, John A.	115 E. Highland, Malvern 72104	332-2371
FP	White, Robert H.	1004 Dyer, Malvern 72104	332-3664
FP	Wise, John D.	300 E. Roosevelt Rd., Little Rock 72206	372-8361 Ext. 581

HOWARD-PIKE COUNTY

FP	Dildy, Edwin V.	P. O. Box 549, Nashville 71852	845-1933
GP	Jones, William J.	P. O. Box 49, Glenwood 71943	356-3921
FP	King, Joe D.	P. O. Box 549, Nashville 71852	845-1933
R	Leavelle, Ray W.	P. O. Box 381, Nashville 71852	845-4400
FP	Peebles, Samuel W.	120 W. Sybert, Nashville 71852	845-4676
GP	Smith, U. Lee	P. O. Box 807, Nashville 71852	845-3880
GP	Turbeville, James O.	P. O. Box 434, Murfreesboro 71958	285-2182
GP	Ward, Hiram T.	P. O. Box 319, Murfreesboro 71958	285-2491
FP	Wesson, John H.	120 W. Sybert, Nashville 71852	845-4676
FP	White, Phillip L.	P. O. Box 538, Murfreesboro 71958	285-2491
GP	Wilmoth, Marion H.	P. O. Box 804, Nashville 71852	845-4780

INDEPENDENCE COUNTY

GP	Alexander, William J., III	P. O. Box 2116, Batesville 72501	793-5251
GP	Baker, John R.	P. O. Box 2116, Batesville 72501	793-5251
IM	Baxley, Paul J.	P. O. Box 2116, Batesville 72501	793-5221
FP	Beck, Carl T.	P. O. Drawer J, Mountain View 72560	269-3834
RD	Calaway, W. Hickman	807 Boswell, Batesville 72501 (Res.)	793-2728
FP	Gray, W. Paul	P. O. Box 2437, Batesville 72501	793-2321
OPH	Jones, Edward T.	180 N. 5th, Batesville 72501	793-5257
FP	Ketz, Wesley J.	P. O. Box 2695, Batesville 72501	793-2371
FP	Lytle, Jim E.	P. O. Box 2116, Batesville 72501	793-6663
GS	Monroe, Howard U.	Monroe Clinic, Mountain View 72560	269-3236
GP	Moody, Lackey G.	P. O. Box 2335, Batesville 72501	793-6888
R	McClain, C. M., Jr.	154 S. 3rd, Batesville 72501	793-2207
FP	Raney, Troy	P. O. Box 83, Cave City 72521	283-5762
GP	Slaughter, Bob L.	P. O. Box 2416, Batesville 72501	793-2540
FP	Smith, Bob G.	P. O. Box 2116, Batesville 72501	793-9352
GS	Stalker, Jim M.	P. O. Box 2575, Batesville 72501	793-5205
GS	Strickland, Nathan E.	109 N. 12th, Batesville 72501	698-1846
GP	Tatum, Harold M.	P. O. Box 147, Melbourne 72556	368-4344
FP	Taylor, Chaney W.	P. O. Box 2116, Batesville 72501	793-5251
GP	Taylor, Charles A.	P. O. Box 2116, Batesville 72501	793-5251
FP	Tucker, Charles L.	P. O. Box 38, Ash Flat 72513	994-7301
FP	Walker, A. T.	P. O. Box 135, Thayer, Missouri 65791	417-264-7121
GP	Wyatt, F. Q.	P. O. Box 2116, Batesville 72501	793-5251
R	Young, Jack S., III	Newark Medical Clinic, Newark 72562	799-3721

JACKSON COUNTY

IM	Ashley, John D.	2nd and Laurel, Newport 72112	523-6721
GS	Carney, J. W.	1205 McLain, Newport 72112	523-8911
	DeCarlo, Leonard J.	Phoenix, Arizona	
IM	Dudley, Guilford M.	1205 McLain, Newport 72112	523-8911
PD	Dunlap, Warner B.	1205 McLain, Newport 72112	523-8911
GS	Frankum, Jerry M., Jr.	2nd and Laurel, Newport 72112	523-6721
GP	Green, Roger L.	P. O. Box 159, Newport 72112	523-6721
RD	Harris, M. Haymond	501 Walnut, Newport 72112 (Res.)	523-5168
RD	Jackson, Jabez F.	304 Ash, Newport 72112 (Res.)	523-8314
OBG	Jackson, Jabez F., Jr.	1205 McLain, Newport 72112	523-8911
RD	Norris, R. O.	1419 S. Main, Jonesboro 72401 (Res.)	NF
OPH	Stanfield, Wayne	P. O. Box 129, Newport 72112	523-3321
RD	Williams, Thomas E.	10 Park Place, Newport 72112 (Res.)	523-6121
GP	Wright, John C.	1205 McLain, Newport 72112	523-8911

JEFFERSON COUNTY

ADM	Adams, Carl H.	P. O. Box 500, Grady 71644	479-3311
RD	Anderson, Charles W.	1411 Olive, Pine Bluff 71601 (Res.)	535-1661
FP	Atnip, Gwyn	1111 W. 15th, Pine Bluff 71603	535-3551
FP	Bell, Carl H., Jr.	1602 W. 42nd, Pine Bluff 71603	535-4850
ORS	Blackwell, Banks	1400 W. 43rd, Pine Bluff 71603	534-3122
OBG	Bracy, Calvin M.	1704 W. 42nd, Pine Bluff 71603	536-7550
U	Brooks, R. Teryl, Jr.	1604 W. 42nd, Pine Bluff 71603	536-7758
FP	Bryant, R. Frank	1112 Linden, Pine Bluff 71601	534-4352
OTO	Buckley, J. Wayne	1408 W. 43rd, Pine Bluff 71603	535-5719
P	Burford, Thomas G.	4313 W. Markham, Little Rock 72205	664-4500
GE	Butler, Robert C.	1624 W. 42nd, Pine Bluff 71603	536-7660
GP	Cheek, Ben H.	12 Hunters Cove, Pine Bluff 71603 (Res.)	534-0713
PTH	Clark, James F., Jr.	1515 W. 42nd, Pine Bluff 71603	535-6800
FP	Coker, L. Randle	P. O. Box 276, Star City 71667	628-4292
IM	Crenshaw, John	1421 Cherry, Pine Bluff 71601	535-2200
FP	Cunningham, Thomas J.	300 W. 6th, Pine Bluff 71601	534-4723
D	Davis, Charles M.	1416 W. 43rd, Pine Bluff 71603	535-7477
P	Dean, Lee A.	P. O. Box 1019, Pine Bluff 71613	534-1834
GS	Dickins, Robert D.	1003 Cherry, Pine Bluff 71601	534-8141
**FP	Eakin, Donald G.	1310 Cherry, Pine Bluff 71601	541-0770
R	Fendley, Claude E.	P. O. Box 7863, Pine Bluff 71611	534-8651
OPH	Glasscock, Robert E.	1706 Doctors Dr., Pine Bluff 71603	534-4357
PD	Green, Horace L.	1420 W. 43rd, Pine Bluff 71603	534-6210
ORS	Gullett, Robert R., Jr.	1714 Doctors Dr., Pine Bluff 71603	536-7579
R	Hardin, J. David	1515 W. 42nd, Pine Bluff 71603	535-6800 Ext. 4754
IM	Harper, William F.	1702 W. 42nd, Pine Bluff 71603	536-9230
N	Harris, Ruben M.	1726 Doctors Dr., Pine Bluff 71603	536-7806
PD	Hart, J. Clyde, Jr.	1420 W. 43rd, Pine Bluff 71603	534-6210
OBG	Hayden, Virgil L.	1706 W. 42nd, Pine Bluff 71603	535-8180
R	Hegwood, Henri M.	P. O. Box 7863, Pine Bluff 71611	534-8651
PD	Henderson, Francis M.	1515 W. 42nd, Pine Bluff 71603	535-6800
IM	Hoover, S. H.	1610 W. 42nd, Pine Bluff 71603	536-7300
**FP	House, Roger D.	1310 Cherry, Pine Bluff 71601	541-0770
OPH	Hughes, L. Milton	1414 W. 43rd, Pine Bluff 71603	536-7738
FP	Hussain, Shafat	1710 W. 42nd, Pine Bluff 71603	535-4640
U	Hutchison, Ernest L.	1724 W. 42nd, Pine Bluff 71603	535-1562
OBG	Hyman, Carl E.	121 E. 4th, Pine Bluff 71601	534-3365
GS	Irwin, Raymond A., Jr.	1421 Cherry, Pine Bluff 71601	535-2200

Type of Practice	Member's Name	Address	Telephone Number
P.	James, William Joe	P. O. Box 1019, Pine Bluff 71613.	534-1834
CD.	Jenkins, Bobby J.	1612 W. 42nd, Pine Bluff 71603.	536-3015
AN.	Jenkins, Mary Ellen	1410 W. 42nd, Pine Bluff 71603.	535-5522
R.	Joseph, Aubrey S.	P. O. Box 7863, Pine Bluff 71611.	534-8650
AN.	Khan, Mahmood A.	1410 W. 42nd, Pine Bluff 71603.	535-5522
GS.	King, G. Errol	1107 Cherry, Pine Bluff 71601.	534-5141
OPH.	King, Yum Y.	4800 S. Hazel, Pine Bluff 71603.	536-1897
OTO.	Langston, Lloyd G.	1408 W. 43rd, Pine Bluff 71603.	535-5719
FP.	Lindsey, James A.	1310 Cherry, Pine Bluff 71601.	541-0770
AN.	Malik, Rustam A.	1410 W. 42nd, Pine Bluff 71603.	535-5522
GP.	Mavnard, Ross E.	115 E. 5th, Pine Bluff 71603.	534-5732
GS.	Meredith, William R.	1716 W. 42nd, Pine Bluff 71603.	535-8727
ADM.	Miller, Donald L.	1515 W. 42nd, Pine Bluff 71603.	535-6800 Ext. 4735
R.	Milligan, Monte C.	P. O. Box 7863, Pine Bluff 71611.	534-8651
IM.	Monroe, Sanford C.	1421 Cherry, Pine Bluff 71601.	535-2200
FP.	Morris, Harold J.	1030 Poplar, Pine Bluff 71601.	534-0822
R.	McDonald, Robert L.	P. O. Box 7863, Pine Bluff 71611.	534-8651
PD.	McKinney, Daniel C.	1420 W. 43rd, Pine Bluff 71603.	534-6210
OPH.	Nixon, William R.	709 W. 6th, Pine Bluff 71601.	534-2624
IM.	Nuckolls, J. William	1720 Doctors Dr., Pine Bluff 71603.	541-0222
RD.	Payne, Virgil L.	802 W. 5th, Pine Bluff 71601 (Res.)	534-5618
CD.	Pearce, Malcolm B.	1612 W. 42nd, Pine Bluff 71603.	536-3015
GP.	Perry, V. Bryan	1722 W. 42nd, Pine Bluff 71603.	535-4141
OBG.	Pierce, J. R., Jr.	1712 W. 42nd, Pine Bluff 71603.	535-3443
**FP.	Pierce, Joseph B.	1310 Cherry, Pine Bluff 71601.	541-0770
FP.	Raney, Oliver C.	1720 W. 42nd, Pine Bluff 71603.	534-5861
D.	Reaves, Charles E.	1708 W. 42nd, Pine Bluff 71603.	536-8045
ORS.	Reed, E. Frank	916 Cherry, Pine Bluff 71601.	535-0121
PD.	Reid, Lloyene Bruce	1606 W. 42nd, Pine Bluff 71603.	534-2232
PD.	Rhyne, James T.	1420 W. 43rd, Pine Bluff 71603.	534-6210
GS.	Rittelmeyer, C. M.	1716 W. 42nd, Pine Bluff 71603.	535-8727
OBG.	Roaf, Sterling A.	1310 Linden, Pine Bluff 71603.	536-4602
GS.	Roberson, George V.	1708 Doctors Dr., Pine Bluff 71603.	535-2716
GP.	Robinette, Joseph S.	1722 Doctors Dr., Pine Bluff 71603.	535-2372
GE.	Rogers, Henry L.	1624 W. 42nd, Pine Bluff 71603.	536-7660
RD.	Russell, Allen R.	12 Southern Pines Dr., Pine Bluff 71603 (Res.)	534-6481
OBG.	Simmons, Calvin R.	1714 W. 42nd, Pine Bluff 71603.	535-3213
NS.	Simpson, P. B., Jr.	1724 Doctors Dr., Pine Bluff 71603.	536-8547
GS.	Smith, Robert J.	817 Cherry, Pine Bluff 71601.	535-1880
GS.	Stern, Howard S.	1315 Linden, Pine Bluff 71603.	534-0342
GS.	Sullenberger, A. G.	1726 W. 42nd, Pine Bluff 71603.	534-4407
IM.	Talbot, George B.	1421 Cherry, Pine Bluff 71601.	535-2200
PTH.	Tisdale, Alfred D., Jr.	1718 W. 42nd, Pine Bluff 71603.	535-6616
PD.	Townsend, Thomas E.	1420 W. 43rd, Pine Bluff 71603.	534-6210
IM.	Tracy, C. Clyde	1421 Cherry, Pine Bluff 71601.	535-2200
GS.	Wilkins, Walter J., Jr.	1421 Cherry, Pine Bluff 71601.	535-2200
IM.	Wineland, H. L.	1710 Doctors Dr., Pine Bluff 71603.	534-3561
PDA.	Worrell, Aubrey M., Jr.	1600 W. 42nd, Pine Bluff 71603.	535-8200

JOHNSON COUNTY

FP.	Fraser, Robert E.	P. O. Box 668, Clarksville 72830.	754-8384
FP.	Patterson, Jack T.	P. O. Box 668, Clarksville 72830.	754-8384
FP.	Pennington, Donald H.	P. O. Box 668, Clarksville 72830.	754-8384
GP.	Shrigley, Guy P.	P. O. Box 70, Clarksville 72830.	754-2043
FP.	West, Boyce W.	P. O. Box 220, Clarksville 72830.	754-8384

LAFAYETTE COUNTY

GP.	Ditsch, Craig E.	P. O. Box 276, Stamps 71860.	533-4461
GP.	Lee, Willie J.	P. O. Box 276, Stamps 71860.	533-4461

LAWRENCE COUNTY

FP.	Cruse, Edward J.	P. O. Box 116, Black Rock 72415.	878-6209
RD.	Dickey, A. B.	704 N.W. 3rd, Walnut Ridge 72476 (Res.)	886-5377
GP.	Elders, John B., Sr.	321 S.W. 3rd, Walnut Ridge 72476.	886-3162
FP.	Hughes, Joe E.	P. O. Box 150, Walnut Ridge 72476.	886-3543
IM.	Joseph, Ralph F.	Highway 25 West, Walnut Ridge 72476.	886-3211
FP.	Lancaster, Ted S.	P. O. Box 150, Walnut Ridge 72476.	886-3543
GP.	Lowery, Robert D.	P. O. Box 150, Walnut Ridge 72476.	886-3543
GP.	Neff, Michael D.	Highway 25 West, Walnut Ridge 72476.	886-3211
R.	Smoot, John D.	P. O. Box 934, Jonesboro 72401.	886-6611
FP.	Spades, Sebastian A.	1210 Hwy. 25 West, Walnut Ridge 72476.	886-3543

LEE COUNTY

GP.	Fields, Elizabeth C.	77 W. Main, Marianna 72360.	295-5244
FP.	Gray, Dwight W.	110 W. Chestnut, Marianna 72360.	295-3131
FP.	McLendon, Mac.	P. O. Box 794, Marianna 72360.	295-2711

LINCOLN COUNTY

GP.	Freeland, James W.	P. O. Box 159, Star City 71667.	628-4226
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LITTLE RIVER COUNTY

FP.	Armstrong, James D.	P. O. Box 397, Ashdown 71822.	898-3306
RD.	Peacock, Norman W.	Route 2, Ashdown 71822 (Res.)	898-3353
FP.	Shelton, Joe G., Jr.	P. O. Box 697, Ashdown 71822.	898-3306

LOGAN COUNTY

GS.	Bledsoe, James H.	114 W. 4th, Booneville 72927.	675-4020
FP.	Chalfant, Charles H.	114 W. 4th, Booneville 72927.	675-2455
FP.	Daniel, William R.	114 W. 4th, Booneville 72927.	675-2455
FP.	Roberts, William J.	114 W. 4th, Booneville 72927.	675-2455
GP.	Smith, Charles M.	P. O. Box 286, Paris 72855.	963-2191
GP.	Smith, James T.	P. O. Box 286, Paris 72855.	963-2191

LONOKE COUNTY

FP.	Camp, Arthur W.	P. O. Box 547, Hazen 72064.	255-3321
GP.	Gartman, Joseph F.	P. O. Box 450, Carlisle 72024.	552-7561
GP.	Harris, Willie R.	P. O. Box 40, England 72046.	842-2553
GP.	Holmes, B. E.	305 W. Front, Lonoke 72086.	676-6560
FP.	Inman, Fred C., Jr.	P. O. Box K, Carlisle 72024.	552-7575

Type of Practice	Member's Name	Address	Telephone Number
OM	Kimsey, Warren H.	Remington Arms Company, Lonoke 72086	676-3161
FP	Morrison, Doyle H.	P. O. Box 993, Cabot 72023	843-3549
CD	Schumann, Gerald M.	P. O. Drawer 1, Des Arc 72040	256-4312
FP	Washburn, C. Yulan	Route 1, Box 219, Ward 72176	843-3335

MILLER COUNTY

R	Andrews, A. E.	P. O. Box 689, Texarkana 75501	774-2121
GS	Bransford, Robert M.	P. O. Box 778, Texarkana 75501	774-3211
PD	Burnett, James W.	414 Hazel, Texarkana 75502	774-7301
PD	Burroughs, James C.	300 E. 6th, Texarkana 75501	774-3211
PTH	Chappell, Robert H.	P. O. Box 1288, Texarkana 75501	214-794-8311
OPH	Cook, Lewis C.	2020 College Dr., Texarkana 75503	214-794-7881
PD	Cowan, Noel W.	300 E. 6th, Texarkana 75501	774-3211
GS	Duncan, Donald L.	P. O. Box 778, Texarkana 75501	774-3211
OPH	Ellison, Eugene T., Jr.	P. O. Box 1409, Texarkana 75501	214-792-7151
P	Fisher, Donald E.	P. O. Box 1987, Texarkana 75501	773-4655
IM	Goesl, Andrew G.	P. O. Box 2027, Texarkana 75501	214-792-6946
PD	Hall, Jon D.	300 E. 6th, Texarkana 75501	774-3211
GYN	Harrell, William B., Jr.	P. O. Box 2078, Texarkana 75501	214-792-8231
OBG	Harrison, Jack W.	P. O. Box 778, Texarkana 75501	774-3211
ORS	Hughes, Mary W.	1001 Main, Texarkana 75501	214-792-6976
ORS	Hughes, Robert P.	300 E. 6th, Texarkana 75501	774-3211
GYN	Jones, John W.	300 E. 6th, Texarkana 75501	774-3211
PTH	Joyce, Frederick E.	P. O. Box 2763, Texarkana 75501	793-6591
GYN	Kemp, Karlton H.	408 Hazel, Texarkana 75502	774-5181
FP	Kittrell, James B.	1001 Main, Texarkana 75501	214-794-6107
AN	Laws, John K.	P. O. Box 1140, Texarkana 75501	774-7297
R	McGinnis, Robert S., Sr.	P. O. Box 1409, Texarkana 75501	214-792-7151
OPH	Newton, Norris L.	P. O. Box 2830, Texarkana 75501	214-792-8541
OPH	Rana, Jayant B.	1406 College Dr., Texarkana 75503	214-792-3729
IM	Rodgers, Nathaniel L.	300 E. 6th, Texarkana 75501	774-3211
R	Royal, Jack L.	300 E. 6th, Texarkana 75501	774-3211
FP	Short, Harold H.	1400 College Dr., Texarkana 75503	214-793-5671
TS	Smith, A. D., Jr.	P. O. Box 1409, Texarkana 75501	214-792-7151
RD	Smith, W. Decker	2300 Laurel, Texarkana 75501 (Res.)	773-3503
OPH	Soyars, James E.	2020 College Dr., Texarkana 75503	214-794-3772
GP	Stringfellow, Jerry B.	1205 F. 35th, Texarkana 75501	773-6745
RD	Teasley, Gerald H.	1317 Rio Grande, Texarkana 75503 (Res.)	214-794-5245
PTH	Wicker, Eugene H.	315 E. 5th, Texarkana 75501	774-2121
	Wilhelm, Frieda	Dallas, Texas	
GS	Wren, Herbert B.	P. O. Box 1409, Texarkana 75501	214-792-7151
U	Yarbrough, Charles P.	1102 Main, Texarkana 75501	214-793-5608
GS	Young, Mitchell	1406 College Dr., Texarkana 75503	214-792-8254

MISSISSIPPI COUNTY

PH	Beasley, Joseph E.	N. 10th St., Blytheville 72315	763-7064
IM	Brock, Charles C., Jr.	527 N. 6th, Blytheville 72315	763-8118
U	Campbell, C. E., Jr.	501 Hutson, Blytheville 72315	763-0855
FP	Cole, C. R.	519 N. 6th, Blytheville 72315	763-1554
FP	Cullom, S. Rengie	608 W. Lee, Osceola 72370	563-2608
GP	Elliot, John Q.	209 W. Ash, Blytheville 72315	763-4548
FP	Fairley, Eldon	P. O. Box 68, Osceola 72370	563-6568
FP	Fairley, Julian R.	P. O. Box 68, Osceola 72370	563-6568
R	Gratz, John F., Jr.	Osceola Memorial Hospital, Osceola 72370	563-2611
GP	Green, W. O., Jr.	P. O. Box 268, Blytheville 72315	763-6802
PTH	Hart, Sybil R.	Rt. 4, Box 327, Blytheville 72315 (Res.)	763-1617
R	Hart, Wade A.	10th and Highland, Blytheville 72315	763-5111 Ext. 218
FP	Holcomb, C. E.	511 N. 6th, Blytheville 72315	763-3922
FP	Hubener, Lemly L.	P. O. Box 1806, Blytheville 72315	762-2021
	Hubener, Louis F.	Gainesville, Florida	
IM	Jones, Herbert	P. O. Box 321, Blytheville 72315	763-8037
IM	Massey, Lorenzo D.	P. O. Box 388, Osceola 72370	563-6242
FP	Osborne, Merrill J.	527 N. 6th, Blytheville 72315	763-8118
FP	Pollock, George D.	608 W. Lee, Osceola 72370	563-2608
FP	Rhodes, R. F.	608 W. Lee, Osceola 72370	563-2608
GP	Rodman, Tasker N.	P. O. Box 260, Leachville 72438	539-4337
FP	Russell, James D.	527 N. 6th, Blytheville 72315	763-8118
GP	Shanefelt, E. A.	P. O. Box 630, Manila 72442	561-4421
GS	Sims, Hunter C., Jr.	525 N. 10th, Blytheville 72315	763-0571
FP	Smith, Ronald D.	620 W. Walnut, Blytheville 72315	763-4541
FP	Utlef, F. E.	515 N. 6th, Blytheville 72315	763-4575
OPH	Webb, J. J. (Jack)	P. O. Box 547, Blytheville 72315	762-2131
ORG	Workman, W. W.	527 N. 6th, Blytheville 72315	763-8118
GS	Zufari, Munir	527 N. 6th, Blytheville 72315	763-8118

MONROE COUNTY

#	Dalton, Marvin L.	Brinkley	
FP	David, N. C. Jr.	108 W. Ash, Brinkley 72021	734-2212
GP	Pupsta, Benedict F.	P. O. Box 250, Clarendon 72029	747-3321
GP	Stone, Herd E.	P. O. Box A, Holly Grove 72069	462-3393
FP	Walker, Walter L.	114 S. New Orleans, Brinkley 72021	734-3242
FP	Williams, J. P., Jr.	127 S. New Orleans, Brinkley 72021	734-1331

NEVADA COUNTY

GP	Avery, Charles D.	427 E. 6th, Prescott 71857	887-2625
GP	Crow, H. Blake	327 E. 2nd, Prescott 71857	887-3846
RD	Hairston, G. G.	P. O. Box 675, Prescott 71857 (Res.)	887-2155
GP	Harrell, L. J.	117 E. 2nd, Prescott 71857	887-2312
FP	Portis, Richard P.	P. O. Box 442, Prescott 71857	887-6651
FP	Russell, James T.	P. O. Box 442, Prescott 71857	887-6651
FP	Young, Michael C.	P. O. Box 442, Prescott 71857	887-6651

OUACHITA COUNTY

U	Brown, Charles H.	415 Hospital Dr., Camden 71701	836-5013
FP	Davidson, Dennis O.	P. O. Box 67, Stephens 71764	786-5404
IM	Dedman, J. L.	415 Hospital Dr., Camden 71701	836-5013
GP	Drewrey, L. E.	430 Magnolia Rd., S.W., Camden 71701	836-6811
AN	Ellis, Joseph L.	P. O. Box 126, Camden 71701	836-7144
GS	Fohn, Charles H.	415 Hospital Dr., Camden 71701	836-5013
GP	Guthrie, James	353 Cash Rd., Camden 71701	836-8101
FP	Hout, Judson N.	353 Cash Rd., Camden 71701	836-8101

Type of Practice	Member's Name	Address	Telephone Number
GS	Jameson, J. B., Jr.	P. O. Box 994, Camden 71701.	836-5088
FP	Kendall, J. R.	353 Cash Rd., Camden 71701.	836-8101
FP	Livingston, Bill B.	225 Jackson, Camden 71701.	836-7367
RD	Miller, John H.	916 Clifton, N.W., Camden 71701 (Res.)	836-2549
FP	Nunnally, Robert H.	353 Cash Rd., Camden 71701.	836-8101
IM	Ozment, Lowell V.	353 Cash Rd., Camden 71701.	836-8101
GYN	Plant, Richard F.	P. O. Box 762, Camden 71701.	836-4169
FP	Sanders, Cal R.	353 Cash Rd., Camden 71701.	836-8101
R	Thorne, A. E.	P. O. Box 797, Camden 71701.	836-1221

PHILLIPS COUNTY

GP	Barrow, John H.	614 Oakland, Helena 72342.	338-8622
FP	Bell, L. J. Patrick	626 Poplar, Helena 72342.	338-8163
OPH	Berger, Alfred A.	801 Perry, Helena 72342.	338-8781
R	Biggs, William W.	Helena Hospital, Helena 72342.	338-6411
RD	Butts, James W.	708 McDonough, Helena 72342 (Res.)	338-8006
GP	Capes, Bernard	P. O. Box 2398, West Helena 72390.	572-2621
GP	Ellis, William A.	603 Porter, Helena 72342.	338-3037
GP	Faulkner, H. N.	513 Porter, Helena 72342.	338-7401
#	Hill, William K.	Elaine	
FP	Kirkman, C. M. T.	1105 Perry, Helena 72342.	338-8712
P	Mateus, Francy M.	305 Valley Dr., Helena 72342.	338-6741
FP	Miller, Robert D.	616 Elm, Helena 72342.	338-8531
GP	McCarty, C. P.	513 Porter, Helena 72342.	338-7401
FP	McCarty, Gordon E., Jr.	107 Hickory Hill, Helena 72342.	338-8377
GP	McDaniel, M. A.	513 Porter, Helena 72342.	338-7401
GP	Oldham, H. B.	P. O. Box 2538, West Helena 72390.	572-7581
GP	Paine, W. T.	661 Oakland, Helena 72342.	572-6413
GP	Wise, James E., Jr.	P. O. Box 66, Marvell 72366.	829-2386

POLK COUNTY

FP	Fried, David D.	Northside Shopping Center, Mena 71953.	394-5880
GP	Hefner, David P.	518 Janssen Mena 71953.	394-3550
GP	Redman, Pierre P.	513 Mena, Mena 71953.	394-2277
GP	Rogers, Henry N.	600 W. 7th, Mena 71953.	394-3344
GS	Wood, John P.	907 Mena, Mena 71953.	394-4221

POPE COUNTY

FP	Ashcraft, Ted E.	2524 W. Main, Russellville 72801.	968-7170
OTO	Austin, Nathan F.	2504 W. Main, Russellville 72801.	968-5261
GS	Bachman, David S.	3105 W. Main Place, Russellville 72801.	968-2345
U	Bell, Robert A.	2301 W. Main, Russellville 72801.	968-3323
AN	Birum, Patricia J.	P. O. Box 785, Russellville 72801.	968-5670
PD	Bost, R. Kingsley	3105 W. Main Place, Russellville 72801.	968-2345
R	Burgess, James G.	2504 W. Main, Russellville 72801.	968-7930
FP	Carter, James M.	3105 W. Main Place, Russellville 72801.	968-2345
GS	Crumpler, Joe B.	3105 W. Main Place, Russellville 72801.	968-2345
OBG	Dunn, Donald L.	3105 W. Main Place, Russellville 72801.	968-2345
D	Galloway, William W.	2504 W. Main, Russellville 72801.	968-6969
OPH	Gardner, Ellis	P. O. Box 400, Russellville 72801.	968-2242
RD	Gavlas, Frank E.	310 N. 2nd, Dardanelle 72834 (Res.)	229-4225
RD	Heidgen, Martin F.	3028 Painted Valley Dr., Little Rock 72207 (Res.)	227-5107
GP	Henry, John A.	3105 W. Main Place, Russellville 72801.	968-2345
ORS	Honghiran, Ted	2504 W. Main, Russellville 72801.	968-3200
GS	Kimball, G. Howard	1919 W. Main, Russellville 72801.	968-3611
R	King, John W.	2504 W. Main, Russellville 72801.	968-7970
GP	King, W. Ernest, Jr.	3105 W. Main Place, Russellville 72801.	968-2345
ORS	Kolb, James M., Jr.	305 Skyline Dr., Russellville 72801.	968-2124
FP	Lane, W. H., Jr.	625 Water St., Dover 72837.	331-2828
OPH	Lovell, Richard K.	P. O. Box 1107, Russellville 72801.	968-7302
FP	Lowrey, Douglas H.	809 W. Main, Russellville 72801.	968-2156
OPH	Lyford, Joe H., Jr.	P. O. Box 1107, Russellville 72801.	968-7302
GP	Malone, George E.	P. O. Box 187, Atkins 72823.	641-2992
FP	Mauch, E. Jane	3105 W. Main Place, Russellville 72801.	968-2345
RD	Millard, Roy I.	1704 W. 3rd, Russellville 72801 (Res.)	968-2604
OPH	Mobley, Max J.	P. O. Box 400, Russellville 72801.	968-2242
RD	McNamara, William L.	2121 Towson, Fort Smith 72901 (Res.)	785-1441
FP	New, Kenneth O.	3105 W. Main Place, Russellville 72801.	968-2345
PTH	Stolz, Gerald A.	P. O. Box 925, Russellville 72801.	968-6781
FP	Teeter, Stanley D.	3105 W. Main Place, Russellville 72801.	968-2345
IM	Thurlby, W. Robert	3105 W. Main Place, Russellville 72801.	968-2345
IM	Wilkins, Charles F., Jr.	3105 W. Main Place, Russellville 72801.	968-2345
FP	Williams, David M.	809 W. Main, Russellville 72801.	968-2156
EM	Young, Sandra S.	1800 W. Main, Russellville 72801.	968-2841

PULASKI COUNTY

AN	Abbott, William W.	500 S. University, Little Rock 72205.	664-4532
GE	Abraham, James H.	10901 Lile Dr., Little Rock 72205.	227-8000
NS	Adamez, John H.	750 Medical Towers Bldg., Little Rock 72205.	225-0880
PUD	Adamson, James S.	890 Medical Towers Bldg., Little Rock 72205.	224-0110
OPH	Alford, T. Dale	5700 W. Markham, Little Rock 72205.	664-5100
OBG	Allen, D. B.	500 S. University, Little Rock 72205.	664-4131
OBG	Allen, Edward S.	1100 N. University, Little Rock 72207.	664-9191
CDS	Allen, John E., Jr.	1050 Medical Towers Bldg., Little Rock 72205.	227-8300
PS	Allen, Thomas H. "Bill"	413 N. University, Little Rock 72205.	664-0900
HEM	Amir, Jacob	10901 Lile Drive, Little Rock 72205.	227-8000
FP	Anderson, J. Roland	1308 E. Kiehl, Sherwood 72116.	835-0703
FP	Anderson, Leslie F.	P. O. Box 805, Jacksonville 72076.	982-4551
OM	Armstrong, Howard M.	340 Doctors Park Bldg., Little Rock 72205.	227-7888
**AN	Ashcraft, Keith E.	8th and Wolfe Sts., Little Rock 72202.	376-4621, Ext. 106
PTH	Atkinson, William E., Jr.	500 S. University, Little Rock 72205.	661-3371
RD	Ault, Charles G.	1810 W. Long 17th St., North Little Rock 72114 (Res.)	374-0748
PD	Austin, L. K., Jr.	H. L. Ross Dr., Monticello 71655.	367-6832
RD	Autry, Daniel H.	1900 N. Tyler, Little Rock 72207 (Res.)	664-2332
GS	Baber, John C., Jr.	500 S. University, Little Rock 72205.	664-2434
OT	Bailey, H. A. Ted, Jr.	1200 Medical Towers Bldg., Little Rock 72205.	227-5050
PTH	Baker, Glen F.	P. O. Box 5507, Little Rock 72215.	664-2593
U	Baker, Johnson J.	500 S. University, Little Rock 72205.	664-4365
FP	Baker, Ronald L.	2003 Fendley Dr., North Little Rock 72114.	758-9350
PD	Baldwin, Deane G.	500 S. University, Little Rock 72205.	664-4044
FP	Ballard, C. E., Jr.	250 Doctors Park Bldg., Little Rock 72205.	224-0102

Type of Practice	Member's Name	Address	Telephone Number
OBG	Barclay, David L.	4301 W. Markham, Little Rock 72201	661-5925
CD	Barlow, Brian E.	500 S. University, Little Rock 72205	664-5860
U	Barnett, Troy F.	500 S. University, Little Rock 72205	664-1762
R	Barnhard, Howard J.	4301 W. Markham, Slot 598, Little Rock 72201	661-5683
FP	Barron, Edwin N., Jr.	7915 Cantrell Rd., Little Rock 72207	225-9222
GS	Bauer, Frank M.	500 S. University, Little Rock 72205	664-2245
R	Bearden, James R.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
OPH	Becquet, Norbert J.	115 W. 6th, Little Rock 72201	375-4419
FP	Belknap, Melvin L.	1801 Maple, North Little Rock 72114	758-1002
RD	Bennett, Eaton W.	1003 Loretta Lane, Little Rock 72207 (Res.)	225-2478
GS	Berry, Frederick B.	1060 Medical Towers Bldg., Little Rock 72205	224-3424
FP	Bethell, John P., Jr.	1801 Maple, North Little Rock 72114	758-1002
P	Betts, Charles S.	Route 6, 50 Westwind Dr., North Little Rock 72118	771-1927
GS	Bevans, David W., Jr.	406 Pershing, North Little Rock 72114	758-1620
AN	Beverly, Nolan F.	7518 Choctaw, Little Rock 72205 (Res.)	664-1616
D	Biondo, Raymond V.	P. O. Box 921, North Little Rock 72115	758-2588
CD	Bishop, William B.	10001 Lile Dr., Little Rock 72205	227-8000
U	Bissada, Nabil K.	4301 W. Markham, Slot 540, Little Rock 72201	661-5240
FP	Bizzell, Ross	13 Robinwood, Little Rock 72207 (Res.)	225-3666
GP	Black, Hal R., Jr.	200 Doctors Park Bldg., Little Rock 72205	225-9755
GP	Black, H. Thurston	123 N. Van Buren, Little Rock 72205	666-0142
GER	Black, Millard W.	705 N. Ash, Little Rock 72205	663-5413
GE	Blackshear, Jack L.	650 Medical Towers Bldg., Little Rock 72205	227-8074
ORS	Blankenship, William F.	405 N. University, Little Rock 72205	664-1500
N	Boellner, Samuel W.	300 Medical Towers Bldg., Little Rock 72205	227-4750
CD	Boger, James E.	690 Medical Towers Bldg., Little Rock 72205	227-7596
NS	Boop, Warren C., Jr.	4301 West Markham, Little Rock 72201	661-5270
PD	Bost, Roger B.	4301 W. Markham, Slot 599, Little Rock 72201	661-5260
ORS	Bowker, John H.	12th and Marshall, Little Rock 72201	227-3532
NM	Boyd, Charles M.	4301 W. Markham, Little Rock 72201	661-5761
P	Boyle, Ronald H.	Rt. 1, Box 1A-1/2, Roland 72135	868-5982
U	Bradburn, Curry B.	200 Doctors Park Bldg., Little Rock 72205	225-9755
R	Brenner, George H., Jr.	1100 Medical Towers Bldg., Little Rock 72205	227-2771
PD	Briggs, Barnett P.	500 S. University, Little Rock 72205	664-4117
PD	Briggs, Dale D.	500 S. University, Little Rock 72205	664-0804
IM	Brinkley, Roy A.	220 Doctors Park Bldg., Little Rock 72205	227-6350
OTO	Brizzolara, A. J.	500 S. University, Little Rock 72205	664-4381
P	Broach, R. Fred	12115 Hinson Rd., Little Rock 72212	227-0680
RD	Brown, Martha M.	2014 Boulevard, Little Rock 72204 (Res.)	663-7697
U	Brown, T. Duell	1120 Marshall, Little Rock 72202	375-3376
GE	Browning, Donald G.	409 N. University, Little Rock 72205	664-6980
ADM	Bruce Thomas A.	4301 W. Markham, Little Rock 72201	661-5350
GS	Buchanan, F. R.	500 S. University, Little Rock 72205	664-4324
PD	Buchanan, Gilbert A.	500 S. University, Little Rock 72205	664-4117
GS	Buchman, Joseph A.	500 S. University, Little Rock 72205	664-9116
AN	Bumpas, Joe H.	500 S. University, Little Rock 72205	664-4532
PTH	Burger, Robert A.	9600 W. 12th, Little Rock 72205	227-2888
P	Busby, John V.	12115 Hinson Rd., Little Rock 72212	227-0680
AN	Byrd, Lucas M., Jr.	36 Lakeshore Dr., Little Rock 72204 (Res.)	565-6046
R	Caignet, Juan E.	300 E. Roosevelt Rd., Little Rock 72206	372-8361, Ext. 383
OPH	Calcote, Robert A.	2500 McCain Place, North Little Rock 72116	371-1166
GS	Caldwell, Fred T., Jr.	4301 W. Markham, Little Rock 72201	661-6173
FP	Calhoun, J. Dale	P. O. Box 805, Jacksonville 72076	982-4551
R	Calhoun, Joseph D.	500 S. University, Little Rock 72205	664-3914
AN	Callender, Thomas B.	500 S. University, Little Rock 72205	661-4180
TS	Campbell, Gilbert S.	4301 W. Markham, Little Rock 72201	661-6177
R	Campbell, James W.	500 S. University, Little Rock 72205	664-3914
A	Caplinger, Kelsy J.	P. O. Box 5675, Little Rock 72215	227-5210
P	Carnahan, Robert G.	4313 W. Markham, Little Rock 72205	664-4500
FP	Carson, Layne E.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
R	Caruthers, Samuel B., Jr.	1100 Medical Towers Bldg., Little Rock 72205	227-2771
RD	Cazort, Alan G.	5117 Edgewood, Little Rock 72207 (Res.)	663-3623
ORS	Chakales, Harold H.	405 N. University, Little Rock 72205	664-1500
OPH	Chandler, Billy M.	406 Pershing, North Little Rock 72114	758-1651
FP	Chapman, Jerry C.	P. O. Box 805, Jacksonville 72076	982-4551
RD	Chappell, Ewin S.	400 N. University, Little Rock 72205 (Res.)	663-4747
FP	Cheairs, David B.	330 Doctors Park Bldg., Little Rock 72205	227-6363
GP	Childs, William W.	1304 B Wright Ave., Little Rock 72206	372-0316
#	Choate Hoyt	Little Rock	
U	Christeson, William W.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
ORS	Christian, John D.	1100 N. University, Little Rock 72207	664-7710
FP	Chudy, Amai.	1801 Maple, North Little Rock 72114	758-1002
FP	Church, B. L.	321 Maple, North Little Rock 72114	374-7796
OBG	Church, Marion M.	410 Pershing, North Little Rock 72114	758-1022
AN	Clark, Richard B.	4301 W. Markham, Little Rock 72201	661-5070
OPH	Clifton, E. C. (Cliff)	516 Scott, Little Rock 72201	374-6338
FP	Cobb, Jock S.	North Hills Family Clinic, Sherwood 72116	835-6800
R	Cockrill, Howard, Jr.	500 S. University, Little Rock 72205	664-3914
OTO	Colclasure, Joe B.	1200 Medical Towers Bldg., Little Rock 72205	227-5050
OPH	Cook, Raymond C.	601 Scott, Little Rock 72201	375-8273
OBG	Cornell, Paul J.	500 S. University, Little Rock 72205	664-2277
OS	Corbett, James K.	5326 W. Markham, Little Rock 72205	664-6603
OPH	Cosgrove, K. W.	630 Medical Towers Bldg., Little Rock 72205	224-0400
+	Covey, M. Carl, Jr.	4301 W. Markham, Little Rock 72201	661-5000
CRS	Craig, Marion S.	500 S. University, Little Rock 72205	666-0106
GYN	Crews, J. Travis	500 S. University, Little Rock 72205	664-8505
OPH	Cross, J. B.	500 S. University, Little Rock 72205	666-0126
CDS	Crow, R. Lewis	600 Medical Towers Bldg., Little Rock 72205	227-9434
IM	Cullen, Philip T.	500 S. University, Little Rock 72205	664-4171
R	Dalrymple, Glenn V.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
**FP	David, Andrew E.	13th and Marshall, Little Rock 72203	661-6300
GS	Dean, Gilbert O., Sr.	403 Donaghey Bldg., Little Rock 72201	375-5543
OPH	Deer, P. James, Jr.	601 Scott, Little Rock 72201	375-8273
PD	Dennis, James L.	4301 W. Markham, Little Rock 72201	661-5680
NS	Dickins, Robert D., Jr.	750 Medical Towers Bldg., Little Rock 72205	225-0880
#	Dildy, Hal R.	Little Rock	
FP	Dillard, Daniel C.	3500 S. University, Little Rock 72204	562-4838
R	Diner, Wilma C.	4301 W. Markham, Little Rock 72201	661-5740
R	Dodd, Doyne	1100 Medical Towers Bldg., Little Rock 72205	227-5240
OBG	Dodge, Eva F.	4815 W. Markham, Little Rock 72205	661-2242
ORS	Donson, C. Frank, Jr.	P. O. Box 5270, Little Rock 72215	664-7600
ORS	Donnenburg, Peter R.	500 S. University, Little Rock 72205	661-0350
P	Douglas, Warren M.	260 Medical Towers Bldg., Little Rock 72205	224-2447
GS	Downs, John W.	500 S. University, Little Rock 72205	666-5922
U	Downs, Ralph A.	500 S. University, Little Rock 72205	664-1762

Type of Practice	Member's Name	Address	Telephone Number
PDC	Dungan, William T.	4301 W. Markham, Little Rock 72201	661-5991
FP	Durham, James W.	P.O. Box 805, Jacksonville 72076	982-4551
PH	Easley, Edgar J.	4815 W. Markham, Little Rock 72205	661-2123
ORS	Easter, Rex M.	601 N. University, Little Rock 72205	666-0144
+	Eaves, James B.	4301 W. Markham, Little Rock 72201	661-5000
P	Eckart, Emile P.	4313 W. Markham, Little Rock 72205	664-4500, Ext. 201
AN	Edge, Otis H.	500 S. University, Little Rock 72205	664-8489
GP	Evans, Gilbert C.	4942 W. Markham, Little Rock 72205	664-4127
GP	Farmer, Joseph F.	9501 N. Rodney Parham Rd., Little Rock 72207	225-2594
FP	Farris, Guy R.	6213 Lee, Little Rock 72205	664-2115
IM	Fendley, Jack T.	2500 McCain Place, North Little Rock 72116	771-0300
R	Ferris, Ernest J.	4301 W. Markham, Little Rock 72201	661-5740
FP	Fewell, Ronald D.	P.O. Box 459, Jacksonville 72076	982-2141
GS	Fielder, Charles R.	406 Pershing, North Little Rock 72114	758-1620
R	Fincher, Robert L.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
U	Finkbeiner, Alex E.	4301 W. Markham, Little Rock 72201	661-5240
PD	Fiser, Robert H., Jr.	4301 W. Markham, Little Rock 72201	661-5991
GP	Fitzgibbon, Carney, Jr.	410 S. Martin, Little Rock 72205 (Res.)	666-8861
FP	Flack, James V., Jr.	424 N. University, Little Rock 72205	664-4810
NS	Flanigan, Stevenson	4301 W. Markham, Little Rock 72201	661-5270
NS	Flanigan, Herman F.	4301 W. Markham, Little Rock 72201	661-5270
P	Fletcher, Elizabeth D.	4313 W. Markham, Little Rock 72205	664-4500
NS	Fletcher, Thomas M.	500 S. University, Little Rock 72205	664-0327
GYN	Floyd, Bill G.	210 Doctors Park Bldg., Little Rock 72205	224-6770
FP	Fortson, Wayne E.	Kilgore, Texas	
U	Foster, Julian L.	3500 S. University, Little Rock 72204	562-4838
PD	Fraiser, L. P.	200 Doctors Park Bldg., Little Rock 72205	225-9755
PD	Fraser, Eric A.	516 Pershing, North Little Rock 72114	758-1530
OPH	Fraunfelder, F. T.	4301 W. Markham, Little Rock 72201	661-5150
D	Fulmer, H. Ray	1414 Donaghey Bldg., Little Rock 72201	374-1649
OPH	Fulmer, John M.	5410 W. Markham, Little Rock 72205	664-3142
FP	Fulton, William L.	513 Main, North Little Rock 72114	375-2433
CD	Galbraith, Jo Etta	500 S. University, Little Rock 72205	664-5860
N	Galbraith, Robert C.	300 Medical Towers Bldg., Little Rock 72205	227-4750
OTO	Gay, Ellery C., Jr.	1200 Medical Towers Bldg., Little Rock 72205	227-5050
N	Gibson, Gordon L.	300 Medical Towers Bldg., Little Rock 72205	227-4750
NS	Giles, Wilbur M.	750 Medical Towers Bldg., Little Rock 72205	225-0980
GYN	Gillespie, A. Tharp	500 S. University, Little Rock 72205	664-9555
PD	Glenn, Robert E.	516 Pershing, North Little Rock 72114	758-1530
AN	Glenn, Wayne B.	500 S. University, Little Rock 72205	664-4532
END	Glover, Lawson E.	10001 Lile Dr., Little Rock 72205	227-8000
R	Glover, William C.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
P	Good, Henry H.	Rt. 6, 50 Westwind Dr., North Little Rock 72118	771-1187
A	Gordon, Vida H.	9501 N. Rodney Parham Rd., Little Rock 72207	227-8545
PD	Gosser, Bob L.	516 Pershing, North Little Rock 72114	758-1530
GS	Graham, G. Grimsley	990 Medical Towers Bldg., Little Rock 72205	227-9080
R	Gray, Edwin F.	11901 Fairway Dr., Little Rock 72212 (Res.)	224-0220
**GE	Greenway, C. Don	4301 W. Markham, Little Rock 72201	661-5000
+	Gresham, Edward A.	4301 W. Markham, Little Rock 72201	661-5000
IM	Greutler, John E.	501 N. University, Little Rock 72205	663-8319
ORS	Grimes, H. Austin	P.O. Box 5270, Little Rock 72215	664-7600
GS	Growdon, James H.	500 S. University, Little Rock 72205	664-4146
FP	Gustavus, John L.	2003 Fendley, North Little Rock 72116	758-9350
GYN	Hagler, James L.	500 S. University, Little Rock 72205	664-5330
IM	Hall, Alastair D.	500 S. University, Little Rock 72205	664-0027
OPH	Hankins, Edwin, III	500 S. University, Little Rock 72205	666-0311
OPH	Hardberger, R. E.	405 N. University, Little Rock 72205	661-0450
AN	Harger, C. Harold	1150 Medical Towers Bldg., Little Rock 72205	227-7590
IM	Harper, Ernest H.	400 Pershing, North Little Rock 72114	227-8030
FP	Harper, Gary E.	500 S. University, Little Rock 72205	661-0480
P	Harrendorf, Cagle	500 S. University, Little Rock 72205	663-6346
R	Harris, Donald R.	P.O. Box 7509, Little Rock 72217	664-8573
RHU	Harris, Michael N.	400 Pershing, North Little Rock 72114	227-8000
NM	Harris, William T.	500 S. University, Little Rock 72205	664-3914
P	Harrison, A. Vale	930 Medical Towers Bldg., Little Rock 72205	225-7433
FP	Harrison, Roy E.	8824 Chicot Rd., Little Rock 72209	562-8600
PTH	Harville, William E.	9600 W. 12th, Little Rock 72205	227-2888
P	Hawley, Harold B.	701 Pulaski, Little Rock 72201	371-3030
GS	Heyden, William F.	500 S. University, Little Rock 72205	664-2434
PS	Hayes, Harry, Jr.	500 S. University, Little Rock 72205	666-2811
R	Haynes, W. Ducote	500 S. University, Little Rock 72205	664-3914
U	Headstream, James W.	500 S. University, Little Rock 72205	664-4365
P	Hearnberger, Henry G., Jr.	4313 W. Markham, Little Rock 72205	664-4500
**TS	Hearnberger, John E.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
FP	Hedges, Harold H.	424 N. University, Little Rock 72205	664-4810
A	Hefley, Bill F.	P.O. Box 5675, Little Rock 72215	227-5210
P	Henker, Fred O., III	4301 W. Markham, Little Rock 72201	661-5266
GYN	Henry, Charles R.	500 S. University, Little Rock 72205	664-4191
OPH	Henry, Forrest, Jr.	516 Scott, Little Rock 72201	374-6338
N	Henry, G. Morrison	300 Medical Towers Bldg., Little Rock 72205	227-4750
PD	Henry, Robert L.	500 S. University, Little Rock 72205	664-4044
IM	Herron, Jerry M.	890 Medical Towers Bldg., Little Rock 72205	224-0110
AN	Hickey, Joseph P.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
FP	Hodges, William B.	1800 Maple, North Little Rock 72114	758-1450
R	Holder, John C.	4301 W. Markham, Little Rock 72201	661-5740
**FP	Holder, Robert E.	13th & Wolfe, Little Rock 72202	661-6300
GS	Hollenberg, Henry G.	500 S. University, Little Rock 72205	664-4747
P	Hollis, Nicholas T.	P.O. Box 4042, Little Rock 72214	664-3926
FP	Holmes, Harlan C.	1160 Medical Towers Bldg., Little Rock 72205	225-6123
GS	Holt, L. Gordon	5326 W. Markham, Little Rock 72205	666-9442
R	Holton, Jerry C.	500 S. University, Little Rock 72205	664-3914
D	Honeycutt, W. Magee	500 S. University, Little Rock 72205	664-4161
R	Hooper, Anthony C.	4301 W. Markham, Little Rock 72201	661-5741
PH	Hotchkiss, Robert L.	4815 W. Markham, Little Rock 72205	661-2000
P	Howard, John G.	790 Medical Towers Bldg., Little Rock 72205	227-6370
N	Howell, Coburn S., Jr.	300 Medical Towers Bldg., Little Rock 72205	227-4750
ORS	Hundley, John M.	412 Cross, Little Rock 72201	375-5338
ORS	Hutson, Harold G.	110 Doctors Park Bldg., Little Rock 72205	227-4150
ADM	Jackson, George W.	4313 W. Markham, Little Rock 72205	664-4500
FP	Jackson, M. A.	1304 Wright Ave., Little Rock 72206	374-7940
ORS	Janecki, Chet J.	300 E. Roosevelt Rd., Little Rock 72206	372-8361, Ext. 270
D	Jansen, G. Thomas	500 S. University, Little Rock 72205	664-4161
PTH	Johnson, B. Richard	9600 W. 12th, Little Rock 72205	227-2888
CD	Johnson, Ben D.	500 S. University, Little Rock 72205	661-0300
IM	Johnson, Henry D.	500 S. University, Little Rock 72205	664-4171

Type of Practice	Member's Name	Address	Telephone Number
FP	Johnson, J. Albert	P. O. Box 747, Jacksonville 72076	982-4525
ORS	Johnson, Philip H.	P. O. Box 5270, Little Rock 72215	664-7600
OBG	Johnson, Spencer L.	500 S. University, Little Rock 72205	661-1711
A	Johnston, Thomas G.	P. O. Drawer A, Little Rock 72205	664-3904
ORS	Jones, Kenneth G.	P. O. Box 5270, Little Rock 72215	664-7600
GS	Jones, Robert D.	500 S. University, Little Rock 72205	664-4747
D	Jones, William N.	500 S. University, Little Rock 72205	664-0418
RD	Jordan, William K.	P. O. Box 7545, Little Rock 72217 (Res.)	NF
NS	Jouett, W. Ray	750 Medical Towers Bldg., Little Rock 72205	225-0880
R	Joyce, John W.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
RD	Junkin, Ruth H.	Route 3 Box 367-D, Little Rock 72211 (Res.)	821-3276
AN	Kaemmerling, Raymond E.	500 S. University, Little Rock 72205	664-8489
FP	Kagy, John K.	10121 N. Rodney Parham, Little Rock 72207	224-2525
IM	Kahn, Alfred, Jr.	1300 W. 6th, Little Rock 72201	374-5588
PTH	Kalderon, Albert E.	4301 W. Markham, Little Rock 72201	661-5171
D	Keeran Michael G.	500 S. University, Little Rock 72205	664-4161
FP	Kennedy, Charles H.	3115 JFK Blvd., North Little Rock 72116	753-9464
PD	Kennedy, H. Frazier	500 S. University, Little Rock 72205	664-4117
GS	Kilbury, Merlin J., Jr.	500 S. University, Little Rock 72205	661-0940
PDA	Kittler, Fred J.	P. O. Box 5675, Little Rock 72215	227-5210
CD	Kizziar, Jim C.	10001 Lile Dr., Little Rock 72205	227-8000
P	Koehler, Thomas R.	4313 W. Markham, Little Rock 72205	664-4500
AN	Kolb, Agnes C.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
P	Kolb, W. Payton	230 Medical Towers Bldg., Little Rock 72205	225-0887
GYN	Kozberg, Oscar	4313 W. Markham, Little Rock 72205	664-4500, Ext. 404
OM	Kreth, Kay M.	417 N. University, Little Rock 72205	663-9441
GS	Krygier, Albin J.	615 Main, Little Rock 72201	374-6371
OBG	Kumpuris, Frank G.	415 N. University, Little Rock 72205	664-1521
OTO	Kwee, James T. Y.	310 Doctors Park Bldg., Little Rock 72205	227-7555
OPH	Kyser, James F.	900 Medical Towers Bldg., Little Rock 72205	227-8501
R	Landers, James H.	500 S. University, Little Rock 72205	664-1104
R	Lane John W.	1100 Medical Towers Bldg., Little Rock 72205	227-2771
FP	Langston Harold D.	C.A.R.T.I. Markham & University, Little Rock 72205	664-9573
RD	Laurenzana, Donald A.	3423 Pike Ave., North Little Rock 72118	753-3661
AN	Lawson, Mason G.	200 Ridgeway, Little Rock 72205 (Res.)	663-4834
A	Lawson, Noel W.	4301 W. Markham, Little Rock 72201	661-6114
RHU	Lee, J. Fred	P. O. Drawer A, Little Rock 72205	664-3904
FP	Leonard, Donald G.	10001 Lile Dr., Little Rock 72205	227-8000
OBG	Leonard, Garnett J.	3115 JFK Blvd., North Little Rock 72116	753-9464
ORS	Leou, Frank J.	1050 Medical Towers Bldg., Little Rock 72205	224-1080
GE	Lester, Joe K.	1518 Main, North Little Rock 72114	375-0102
FP	Levy, Jerome S.	500 S. University, Little Rock 72205	664-4181
CD	Lewellen John C.	BB24 Chicot Rd., Little Rock 72209	562-8600
R	Lewis, W. Sexton	700 Medical Towers Bldg., Little Rock 72205	227-4434
GS	Lile, Henry A.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
ORS	Lincoln Ben M.	5326 W. Markham, Little Rock 72205	664-6705
U	Lipke, Jay M.	601 N. University, Little Rock 72205	666-0144
ORS	Logan, Charles W.	500 S. University, Little Rock 72205	664-4364
PD	Logue, Richard M.	601 N. University, Little Rock 72205	666-0144
N	Lowe, Betty Ann	804 Wolfe St., Little Rock 72202	376-4621
GS	Lucy, Dennis D., Jr.	4301 W. Markham, Little Rock 72201	661-5134
GS	Ludwig, Frank R.	406 Pershing, North Little Rock 72114	758-1620
FP	Lyons, Virale E., Jr.	500 S. University, Little Rock 72205	664-2434
IM	Mallory, George L., Jr.	4511 Lynch Dr. North Little Rock 72117	945-9271
PTH	Malott, Jerry D.	670 Medical Towers Bldg., Little Rock 72205	224-2424
GP	Markland, Gary S.	9600 W. 12th, Little Rock 72205	227-2888
PUD	Marvin, Horace N., Jr. (Wick)	500 S. University, Little Rock 72205	661-0480
HEM	Mason, William L.	500 S. University, Little Rock 72205	661-9393
A	Massey C. Garnett	1120 Medical Towers Bldg., Little Rock 72205	227-6770
P	Matthews Joe W.	P. O. Box 5675, Little Rock 72215	227-5210
CD	Matthews, Robert R.	4301 W. Markham, Slot 568, Little Rock 72201	661-5903
AN	Meacham, Donald F.	690 Medical Towers Bldg., Little Rock 72205	227-7596
N	Means, Paul N.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
OPS	Miles, David A.	500 S. University, Little Rock 72205	664-3018
NEP	Millard, I. Leighton	P. O. Box 5270, Little Rock 72215	664-7600
FP	Miller, C. Lindsey	350 Medical Towers Bldg., Little Rock 72205	224-2141
IM	Miller, Forrest B., Jr.	3500 S. University, Little Rock 72204	562-4838
OTO	Miller, Raymond P., Sr.	5918 Lee, Little Rock 72205	664-2500
ADM	Milner, E. L.	500 S. University, Little Rock 72205	664-4318
D	Mitchell, George K.	P. O. Box 2181, Little Rock 72203	378-2133
NS	Moore, Burton A.	500 S. University, Little Rock 72205	664-4161
U	Moore, Jim J.	507 N. University, Little Rock 72205	664-4560
GS	Moore, J. Malcolm	500 S. University, Little Rock 72205	664-4364
IM	Moore, Rex N.	P. O. Box 459, Jacksonville 72076	982-2141
OBG	Moore, Robert B.	5918 Lee, Little Rock 72205	664-2500
TS	Morgan Frank E.	410 Pershing, North Little Rock 72114	758-1022
IM	Morris, W. Dale, Jr.	200 Medical Towers Bldg., Little Rock 72205	224-5666
R	Morris, Woodbridge E.	5326 W. Markham, Little Rock 72205	664-2111
ORS	Morrison, James R.	500 S. University, Little Rock 72205	664-3914
IM	Morrissy, Raymond T.	P04 Wolfe St., Little Rock 72202	376-4621
GE	Morse, Jim C.	500 S. University, Little Rock 72205	661-9741
ORS	Morton, William J.	10001 Lile Dr., Little Rock 72205	227-8000
GP	Mulhollan, James S.	500 S. University, Little Rock 72205	661-0350
P	Murphy, James E.	1800 Maple, North Little Rock 72114	758-1640
R	Murphy, Randolph	4313 W. Markham, Little Rock 72205	664-4500
GYN	McAdoo, Hosea W., Jr.	1100 Medical Towers Bldg., Little Rock 72205	227-5240
PTH	McCaskill, Melvin R.	500 S. University, Little Rock 72205	664-4131
GS	McConnell, John D.	P. O. Box 5507, Little Rock 72215	664-2593
FP	McCracken, John D.	1000 Medical Towers Bldg., Little Rock 72205	227-8180
FP	McCrary, George A.	P. O. Box 805, Jacksonville 72076	982-4551
OTO	McGowan, Robert J., Jr.	424 N. University, Little Rock 72205	664-4810
OBG	McGrew, Robert N.	1200 Medical Towers Bldg., Little Rock 72205	227-5050
ORS	McKelvey, K. David	500 S. University, Little Rock 72205	664-8490
OBG	McKenzie, Charles N.	802 N. University, Little Rock 72205	666-0251
IM	McKnight, C. Allen	800 Medical Towers Bldg., Little Rock 72205	227-5885
GP	McMillan, James A.	670 Medical Towers Bldg., Little Rock 72205	224-2424
FP	McMillin, F. Lamar, Sr.	1311 Louisiana, Little Rock 72202	378-0770
ORS	Napper, George S.	513 Main, North Little Rock 72114	375-2433
R	Nasca, Richard J.	1100 N. University, Little Rock 72207	664-7710
ORS	Nelson, Alvah J., III	500 S. University, Little Rock 72205	664-3914
R	Nelson, Carl L., Jr.	4301 W. Markham, Little Rock 72201	661-5252
RD	Newbern, David H.	500 S. University, Little Rock 72205	664-3914
	Nisbett, James M.	517 E. 7th, Little Rock 72202 (Res.)	375-2252

Type of Practice	Member's Name	Address	Telephone Number
ORS	Nixon, Ewing M.	110 Doctors Park Bldg., Little Rock 72205	227-4150
R	Norton, Joseph A.	8570 Cantrell Rd., Little Rock 72207	225-1860
PH	Oates, Gordon P.	1700 W. 13th, Little Rock 72202	376-4511
GP	Ogden, Mahlon D.	4601 Woodlawn, Little Rock 72205	664-0769
P	Oglesby, Walter R.	4313 W. Markham, Little Rock 72205	664-4500
ADM.	O'Neal, Walter H.	9600 W. 12th, Little Rock 72205	227-2673
PTH.	Orr, William S., Jr.	St. Vincent Infirmary, Little Rock 72201	661-3371
GS	Ozment, Kerry L.	1000 Medical Towers Bldg., Little Rock 72205	227-8180
PTH.	Packmore, D. E.	St. Vincent Infirmary, Little Rock 72201	661-3371
ADM.	Padberg, Frank T.	55 E. Erie, Chicago, Illinois 60611	312-664-4050
OT	Pappas, James J.	1200 Medical Towers Bldg., Little Rock 72205	227-5050
OPH	Parker, J. Mayne	500 S. University, Little Rock 72205	666-9632
GS	Parnell, Clifton L., III	990 Medical Towers Bldg., Little Rock 72205	227-9080
PTH.	Pehrson, Nils C.	P. O. Box S507, Little Rock 72215	664-2593
CHP	Peters, John E.	4301 W. Markham, Little Rock 72201	661-5800
OPH.	Petursson, Gissur J.	4301 W. Markham, Little Rock 72201	661-5151
OPH.	Phillips, Bert L.	1403 Main, North Little Rock 72114	376-2840
GS	Phipps, Woodrow E.	P. O. Box 13, North Little Rock 72115	374-4821
GS	Pike, John D.	500 S. University, Little Rock 72205	664-4321
AN	Pollard, A. E.	500 S. University, Little Rock 72205	664-4533
R	Pool, Chalmers S.	3925 N. Lookout, Little Rock 72205 (Res.)	663-9352
PS	Pope, Norton A.	850 Medical Towers Bldg., Little Rock 72205	227-6164
GE	Power, Robert C.	409 N. University, Little Rock 72205	664-6980
CD	Price, Ben O.	500 S. University, Little Rock 72205	664-9535
IM	Pringos, Andrew A.	102 National Old Line Bldg., Little Rock 72201	375-3231
RD	Proctor, Clark B.	63 Sherrill Heights, Little Rock 72202 (Res.)	663-5269
R	Puckett, Richard P.	4301 W. Markham, Little Rock 72201	661-5740
FP	Purdy, Harold D.	6924 Geyer Springs Rd., Little Rock 72209	562-1463
IM	Pyle, Hoyte R., Jr.	5918 Lee, Little Rock 72205	664-2500
N	Ragsdill, Mary L.	4301 W. Markham, Little Rock 72201	661-5134
PH	Ramsay, Rex C., Jr.	4815 W. Markham, Little Rock 72205	661-2111
FP	Raney, Donald M.	920 McArthur Dr., Jacksonville 72076 (Res.)	982-1171
D	Rague, Carl J.	500 S. University, Little Rock 72205	664-4161
IM	Rasch, James R.	10001 Lile Dr., Little Rock 72205	227-8000
GS	Read, Raymond C.	300 E. Roosevelt Rd. Little Rock 72206	372-8361, Ext. 331
RD	Reaves, B. James	4 Edgehill Rd. Little Rock 72207 (Res.)	663-1570
PUD	Rector, Nancy F.	890 Medical Towers Bldg., Little Rock 72205	224-0110
NS	Reding, David L.	750 Medical Towers Bldg., Little Rock 72205	225-0290
U	Redman, John F.	4301 W. Markham, Slot 540, Little Rock 72201	661-5240
OBG	Reed, Ewing C., Jr.	300 Doctors Park Bldg., Little Rock 72205	227-6377
IM	Reeder, Kathryn I.	Rt. 2, Box 154-B, Conway 72032 (Res.)	327-5440
P	Reese, William G.	4301 W. Markham, Slot 506, Little Rock 72201	661-5266
R	Regnier, George G.	500 S. University, Little Rock 72205	664-3914
R	Rhinehart, William J.	500 S. University, Little Rock 72205	664-3914
GS	Richardson, Robert E.	500 S. University, Little Rock 72205	664-4321
GP	Riddle, John F., Jr.	8824 Chicot Rd., Little Rock 72209	562-8600
FP	Riegler, Nicholas W., Jr.	1024 Scott, Little Rock 72202	375-3326
GS	Riggs, Orval E.	1300 N. Hughes, Little Rock 72207 (Res.)	666-7314
FP	Riley, William H.	3500 S. University, Little Rock 72204	562-4838
CHP	Ringdahl, Irving C.	4301 W. Markham, Little Rock 72201	661-5910
FP	Ritchie, Elmer J.	1401 Main, North Little Rock 72114	372-5253
OPH	Roberson, Michael C.	623 Woodlane, Little Rock 72201	374-6491
IM	Robertson, Fred T.	500 S. University, Little Rock 72205	664-8784
IM	Robins, Rowland R.	VA Hospital, North Little Rock 72114	372-9361, Ext. 609
OBG	Rodgers, C. Dudley	500 S. University, Little Rock 72205	664-4131
FP	Rodgers, Charles H.	3500 S. University, Little Rock 72204	562-4838
RD	Rodgers, Clyde D.	5223 Hawthorne Rd., Little Rock 72207 (Res.)	663-7502
GYN	Roman, Juan J.	780 Medical Towers Bldg., Little Rock 72205	224-3077
ORS	Rooney, Thomas P.	501 W. 25th, North Little Rock 72114	758-2046
RD	Rosenbaum, Carl A.	Route 1, Box 274, Scott 72142 (Res.)	961-9228
ORS	Ross, Ashley S.	500 S. University, Little Rock 72205	664-8515
GYN	Ross, Robert W.	417 N. University, Little Rock 72205	664-8200
HEM	Ross, S. William	10001 Lile Dr., Little Rock 72205	227-8000
PTH.	Roth, Sanford I.	4301 W. Markham, Little Rock 72201	661-5170
	Rothert, Frances C.	Guatemala City, Guatemala	
OTO	Rounsaville, Harry L.	500 S. University, Little Rock 72205	664-9082
OPH	Roy, F. Hampton	970 Medical Towers Bldg., Little Rock 72205	227-6980
PTH.	Rozzell, Allen R.	500 S. University, Little Rock 72205	661-3373
R	Rubin, Sanford A.	4301 W. Markham, Little Rock 72201	661-5740
OTO	Ruggles, Dwayne L.	520 W. 26th, North Little Rock 72114	758-6560
ORS	Runyan, W. A.	110 Doctors Park Bldg., Little Rock 72205	227-4150
FP	Saltzman, Ben N.	4301 W. Markham, Slot 590, Little Rock 72201	661-5371
CDS	Satterfield, John V.	500 S. University, Little Rock 72205	664-6050
ORS	Schrantz, James L.	1100 N. University, Little Rock 72207	664-9446
FP	Schratz, Bruce E.	1801 Maple, North Little Rock 72114	758-1002
OPH	Schroeder, George T.	260 Doctors Park Bldg., Little Rock 72205	224-4484
IM	Schultz, John C.	10001 Lile Dr., Little Rock 72205	227-8000
GS	Schwander, Howard	320 Doctors Park Bldg., Little Rock 72205	227-7200
OPH	Schwarz, W. J.	405 N. University, Little Rock 72205	664-5354
ORS	Selakovich, W. G.	500 S. University, Little Rock 72205	666-2824
P	Shannon, Robert F.	4301 W. Markham, Little Rock 72201	661-5266
ORS	Shuffield, H. Elvin	110 Doctors Park Bldg., Little Rock 72205	227-4150
OBG	Simmons, Orman W.	310 Doctors Park Bldg., Little Rock 72205	227-7555
IM	Simpson, N. Henry	441 Donaghey Bldg., Little Rock 72201	375-2801
P	Sims, James M.	324 Pershing, North Little Rock 72114	753-5180
PD	Sims, Neil H.	4301 W. Markham, Little Rock 72201	661-5992
GS	Sipes, Frank M.	403 Donaghey Bldg., Little Rock 72201	375-5543
R	Slayden, John E.	4301 W. Markham, Little Rock 72201	661-5760
AN	Sloan, Fay M.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
GYN	Sloan, James M.	500 S. University, Little Rock 72205	664-2277
GE	Smart, Douglas F.	409 N. University, Little Rock 72205	664-6980
P	Smith, Aubrey C.	12115 Hinson Rd., Little Rock 72212	227-0680
CD	Smith, David E.	360 Doctors Park Bldg., Little Rock 72205	224-6525
OBG	Smith, Douglas B.	310 Doctors Park Bldg., Little Rock 72205	227-7555
GP	Smith, Huie H.	Benton Services Center, Benton 72015	778-1111, Ext. 381
OPH	Smith, James L.	623 Woodlane, Little Rock 72201	374-4491
OPH	Smith, Joe E.	7107 W. 12th, Little Rock 72204	666-8427
FP	Smith, John McCollough	4000 Woodlawn, Little Rock 72205	666-6570
OTO	Smith, John W.	1415 W. 6th, Little Rock 72201	372-0034
GYN	Smith, Mose, III	5326 W. Markham, Little Rock 72205	664-1527
R	Smith, Phillip L.	4301 W. Markham, Little Rock 72201	661-5740
A	Smith, Purcell, Jr.	P. O. Box 5675, Little Rock 72215	227-5210

Type of Practice	Member's Name	Address	Telephone Number
GE	Smith, Thomas J.	409 N. University, Little Rock 72205	664-6980
PD	Smith, Thomas W.	500 S. University, Little Rock 72205	664-4117
OTO	Smith, Tom	330 Medical Towers Bldg., Little Rock 72205	227-4863
RD	Snodgrass, William A., Jr.	3850 B Rue Maison, Mobile, Alabama 36608 (Res.)	205-342-4845
ORS	Sorrells, R. Barry	P. O. Box 5270, Little Rock 72215	664-7600
RD	Spitzberg, Irving J.	307 N. Cedar, Little Rock 72205 (Res.)	663-6877
PUD	Squire, Arthur E., Jr.	10001 Lile Dr., Little Rock 72205	227-8000
GS	Stainton, Robert M.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
IM	Stanley, Joe P.	Pike Plaza Center, North Little Rock 72114	758-9823
ORS	Steele, William L.	1100 N. University, Little Rock 72207	664-7710
PH	Steinkamp, Ruth C.	4815 W. Markham, Little Rock 72205	661-2235
ONC	Sternberg, Jack J.	500 S. University, Little Rock 72205	661-0060
TS	Stewart, Bill D.	415 N. University, Little Rock 72205	664-1521
FP	Stotts, John R.	5905 "R" St., Little Rock 72207	663-9415
CD	Stout, Kimber M.	2500 McCain Pl., North Little Rock 72116	771-0300
FP	Strauss, Alvin W., Jr.	1026 Donaghey Bldg., Little Rock 72201	372-1828
IM	Strauss, Mark A.	1026 Donaghey Bldg., Little Rock 72201	372-1828
PD	Stroope, George F.	516 Pershing, North Little Rock 72114	758-1530
PS	Stuckey, James G.	500 S. University, Little Rock 72205	664-4383
OTO	Suen, James Y.	4301 W. Markham, Little Rock 72201	661-5140
U	Suliman, J. Samir	518 W. 26th, North Little Rock 72114	758-6111
P	Sundermann, Richard H.	4301 W. Markham, Slot 56B, Little Rock 72201	661-5900
ORS	Sward, David T.	4301 W. Markham, Little Rock 72201	661-5251
PH	Swindoll, Bryant S.	4815 W. Markham, Little Rock 72205	661-2124
O8G	Talley, H. Aubry	500 S. University, Little Rock 72205	664-4131
IM	Taylor, Eugene H.	10001 Lile Dr., Little Rock 72205	227-8000
PD	Teeter, John A.	500 S. University, Little Rock 72205	664-4117
GE	Texter, E. Clinton	4301 W. Markham, Little Rock 72201	661-5177
OPH	Thomas, A. Henry	500 S. University, Little Rock 72205	664-8445
ORS	Thomas, Jerry L.	500 S. University, Little Rock 72205	661-0350
GS	Thomas, Peter O.	1310 Cantrell Rd., Little Rock 72201	374-5703
CD	Thompson, A. J.	500 S. University, Little Rock 72205	664-5860
OTO	Thompson, Albert R.	500 S. University, Little Rock 72205	664-4381
GS	Thompson, Bernard W.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
AN	Thompson, Dola S.	4301 W. Markham, Little Rock 72201	661-6114
ORS	Thompson, Lawrence L.	1310 Cantrell Rd., Little Rock 72201	375-5381
P	Thompson, Robert M.	819 University Tower Bldg., Little Rock 72204	664-2444
ORS	Thompson, Samuel B.	1100 N. University, Little Rock 72207	664-7710
ADM	Thorn, G. Max	St. Vincent Infirmary, Little Rock 72201	661-3154
FP	Tilley, Stephen	5905 "R" St., Little Rock 72207	663-9415
R	Tirman, Robert M.	4301 W. Markham, Little Rock 72201	661-5740
IM	Tolbert, Louis E., Jr.	500 S. University, Little Rock 72205	666-0136
ADM	Towbin, Eugene J.	300 E. Roosevelt Rd., Little Rock 72206	372-8361, Ext. 291
AN	Tseng, Jyi-Ming	1150 Medical Towers Bldg., Little Rock 72205	227-7590
AN	Tudor, John M., Jr.	Salt Lake City, Utah	
AN	Valentine, Robert G.	2800 Percy Machin Dr., North Little Rock 72114	758-4806
FP	Vaughter, W. Roger	3 Ken Circle, Little Rock 72207 (Res.)	664-3789
IM	Wade, William I.	424 N. University, Little Rock 72205	664-4810
RD	Wagoner, Jack	5918 Lee, Little Rock 72205	664-2500
GS	Wallis, Charles	5909 Country Club, Little Rock 72207 (Res.)	663-2132
AN	Walt, James R.	500 S. University, Little Rock 72205	664-4146
AN	Wang, Jerry S. Y.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
FP	Ward, Joseph P.	1150 Medical Towers Bldg., Little Rock 72205	227-7590
PD	Ward, Mildred E.	P. O. Box 456, Cherokee Village 72525 (Res.)	257-2754
N	Warford, Lloyd R.	500 S. University, Little Rock 72205	664-4044
OPH	Warford, Walton R.	VA Hospital, North Little Rock 72114	372-8361, Ext. 691
IM	Watkins, John G.	230 Doctors Park Bldg., Little Rock 72205	227-6797
NS	Watkins, Larry S.	500 S. University, Little Rock 72205	661-9740
**O8G	Watson, Robert	750 Medical Towers Bldg., Little Rock 72205	225-0880
ORS	Wayman, J. David	4301 W. Markham, Little Rock 72201	661-5921
FP	Weber, Edward R.	4301 W. Markham, Little Rock 72201	661-5251
CDS	Weber, James R.	P. O. Box 188, Jacksonville 72076	982-2108
NEP	Weiss, John B.	4301 W. Markham, Little Rock 72201	661-6186
IM	Wellons, James A., Jr.	890 Medical Towers Bldg., Little Rock 72205	224-0110
GS	Wells, Travis L.	216 Donaghey Bldg., Little Rock 72201	375-7121
ONC	Wenger, Carl E.	330 Doctors Park Bldg., Little Rock 72205	227-6363
P	Westbrook, Kent C.	4301 W. Markham, Little Rock 72201	661-6175
GP	Westerfield, Frank M.	230 Medical Towers Bldg., Little Rock 72205	225-0777
P	White, Oba B.	908 High St., Little Rock 72202	374-3609
RD	Whitehead, R. H., Jr.	4313 W. Markham, Little Rock 72205	664-4500
GP	Wilbur, E. Lloyd	3 Wingate Dr., Little Rock 72205 (Res.)	225-1252
CDS	Wilkes, Elbert H.	5322 W. Markham, Little Rock 72205	663-4114
CDS	Williams, C. David	200 Medical Towers Bldg., Little Rock 72205	224-5666
NS	Williams, G. Doyné	4301 W. Markham, Little Rock 72201	661-6175
AN	Williams, Ronald N.	750 Medical Towers Bldg., Little Rock 72205	225-0880
CD	Wilson, George E.	500 S. University, Little Rock 72205	664-4532
ORS	Wilson, James W. D.	500 S. University, Little Rock 72205	664-9040
OPH	Wilson, John L.	601 N. University, Little Rock 72205	666-0144
IM	Wilson, R. Sloan	500 S. University, Little Rock 7205	664-1104
IM	Wilson, T. Ben	2500 McCain Pl., North Little Rock 72116	771-0300
GYN	Winn, Charles R.	240 Doctors Park Bldg., Little Rock 72205	227-6659
FP	Wood, Gary P.	500 S. University, Little Rock 72205	664-6127
END	Wortham, Thomas H.	P. O. Box 459, Jacksonville 72076	982-2141
PTH	Wynn, James O.	4301 W. Markham, Little Rock 72201	661-5000, Ext. 794
U	Young, Douglas E.	9600 W. 12th, Little Rock 72205	227-2888
#	Young, Jerry M.	406 Pershing, North Little Rock 72114	758-1310
D	Young, William O.	Little Rock	
	Zell, Lawrence M.	1310 Cantrell Rd., Little Rock 72201	375-5381

RANDOLPH COUNTY

FP	Baltz, Albert L.	110 W. Broadway, Pocahontas 72455	892-3111
FP	Baltz, M. A.	110 W. Broadway, Pocahontas 72455	892-3111
FP	Barre, Hal S.	P. O. Box 585, Pocahontas 72455	892-3371
FP	DeClerk, Thomas B.	204 Thomasville, Pocahontas 72455	892-3344
FP	Scott, William W.	P. O. Box 585, Pocahontas 72455	892-3371
GP	Smith, Norman K.	107 Van Bibber, Pocahontas 72455	892-3389
GS	Wyllie, James J.	308 W. Broadway, Pocahontas 72455	892-5100

SALINE COUNTY

GP	Ashby, John W.	302 W. South St., Benton 72015	778-4511
R	Ashby, Robert M.	1215 N. Main, Benton 72015	778-6555

Type of Practice	Member's Name	Address	Telephone Number
GS	Baber, Quin M., Jr.	105 McNeil, Benton 72015	778-7435
FP	Bethel, James C.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
#	Callaway, James R.	Benton	
ORS	Cash, Ralph D.	105 McNeil, Benton 72015	778-0484
PM	Coker, S. D.	Benton Services Center, Benton 72015	778-1111
PM	Cornwell, Samuel L.	Rt. 3, Box 225, Benton 72015	371-1906
OBG	Council, R. A. (Tony), Jr.	910 N. East, Benton 72015	778-0426
ORS	Duncan, J. Shelby	105 McNeil, Benton 72015	778-0484
PD	Frاندولی, John E.	1511-B W. Sevier St., Bauxite 72011	776-0781
GP	Hogue, F. Paul	P. O. Box 307, Benton 72015	778-4511
#	Hood, Robert H.	Tyler, Texas	
FP	Izard, Ralph S.	P. O. Box AA, Bryant 72022	847-0289
FP	Jones, Curtis W., Jr.	223 S. Market, Benton 72015	778-2722
FP	Jones, Curtis W., Sr.	225 S. Market, Benton 72015	778-2722
GP	Jones, Robert E.	225 S. Market, Benton 72015	778-3608
FP	Kirk, Marvin N.	P. O. Box 399, Benton 72015	778-8264
FP	Martindale, J. L.	323 Short St., Benton 72015	778-1124
P	Mizell, Walter S.	Benton Services Center, Benton 72015	778-1111
	McNichol, Ronald W.	San Antonio, Texas	
AN	Porter, Jim C.	910 N. East Benton 72015	776 0052
PD	Rountree, Helen	P. O. Box 370, Benton 72015	778-0421
FP	Stewart, David L.	P. O. Box 399, Benton 72015	778-8264
GP	Stubbs Samuel P.	Benton Services Center, Benton 72015	778-1111, Ext. 371
OBG	Thibault, Frank G., Jr.	910 N. East, Benton 72015	778-0426
P	Thompson, John P.	4313 W. Markham, Little Rock 72205	664-4500
FP	Thorn, H. B., Jr.	302 W. South St., Benton 72015	778-4511
GS	Viner, Donald L.	105 McNeil, Benton 72015	778-7435
GP	Wright, John D.	321 Short St., Benton 72015	776-0603

SCOTT COUNTY

GP	Wright, Harold B.	P. O. Box 249, Waldron 72958	637-3111
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SEBASTIAN COUNTY

PD	Aclin, Richard R.	500 S. 16th, Fort Smith 72901	783-1085
RD	Adams, William F.	1100 Murta Rd., Van Buren 72956 (Res.)	474-8668
ORS	Alberty, Joe Paul	300 N. Greenwood, Fort Smith 72901	783-5970
EM	Alexander, R. Kent	1311 S. "I," Fort Smith 72901	441-4381
GS	Anderson, Paul M.	320 N. Greenwood, Fort Smith 72901	782-4066
OBG	Atkins, Jimmie G.	1500 Dodson, Fort Smith 72901	782-2071
GP	Bailey, Charles W.	P. O. Box 426, Greenwood 72936	996-4111
P	Baker, Max A.	924 Adelaide, Fort Smith 72901	785-1428
GE	Barker, Robert C., Jr.	1500 Dodson, Fort Smith 72901	782-2071
CD	Bennett, Fredrick A., Jr.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
AN	Bird, Carolyn W.	6819 S. "I," Fort Smith 72903 (Res.)	452-6291
D	Bradford, A. C.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
R	Broadwater, John R.	1500 Dodson, Fort Smith 72901	782-2071
ORS	Brown, Byron L.	100 N. 16th, Fort Smith 72901	783-3604
RD	Brown, James A.	6810 S. "I," Fort Smith 72903 (Res.)	452-1231
ORS	Buie, James H.	1500 Dodson, Fort Smith 72901	782-2071
FP	Busby, James D.	100 S. 14th, Fort Smith 72901	785-2431
PD	Cabell, Ben B.	312 S. 16th, Fort Smith 72901	782-7921
R	Cassady, Calvin R.	P. O. Box 1612, Fort Smith 72902	782-2071
P	Chambers, A. Pat.	924 Adelaide, Fort Smith 72901	785-1428
P	Chambers, Donald S.	924 Adelaide, Fort Smith 72901	785-1428
AN	Chamblin, Don W.	1500 Dodson, Fort Smith 72901	782-2071
TS	Clemmons, Edward E.	522 S. 16th, Fort Smith 72901	785-1413
AN	Coffman, Edwin L.	1500 Dodson, Fort Smith 72901	782-2071
NEP	Coleman, Michael D.	1500 Dodson, Fort Smith 72901	782-2071
PD	Conard, Donna J.	10515 Meandering Ct., Fort Smith 72903 (Res.)	452-0371
EM	Conard, Rey D.	7301 Rogers, Fort Smith 72903	452-5100
CRS	Crigler, Ralph E.	1500 Dodson, Fort Smith 72901	782-2071
R	Crow, Neil E.	P. O. Box 1612, Fort Smith 72902	782-2071
R	Culp, William C.	318 N. Greenwood, Fort Smith 72901	783-6174
EM	Cunningham, Charles S.	1311 S. "I," Fort Smith 72901	441-4381
EM	Darnall, Harley C.	7515 Westminster Pl., Fort Smith 72903 (Res.)	452-2072
PTH	Davenport, Leo	922 Lexington, Fort Smith 72901	785-1447
CD	Deaton, John M.	1500 Dodson, Fort Smith 72901	782-2071
OBG	DeGueurce, James F., III	1500 Dodson, Fort Smith 72901	782-2071
	Dennis, Chris F.	Address Unknown	
P	Dorzab, Joe H.	924 Adelaide, Fort Smith 72901	785-1428
OBG	Ellis, Homer G.	P. O. Box 3507, Fort Smith 72913	785-2411
R	Erickson, Clark A.	1500 Dodson, Fort Smith 72901	782-2071
OPH	Faier, Samuel Z.	1500 Dodson, Fort Smith 72901	782-2071
HEM	Fecher, Dennis R.	1500 Dodson, Fort Smith 72901	782-2071
U	Feder, Frederick P.	720 Lexington, Fort Smith 72901	782-7261
FP	Feild, T. A., III	3600 N. "O," Fort Smith 72904	783-5158
OPH	Felker, Gary V.	3000 Rogers, Fort Smith 72901	782-8892
AN	Fisher, Robert D.	1500 Dodson, Fort Smith 72901	782-2071
PD	Floyd, Charles H.	617 S. 16th, Fort Smith 72901	783-3166
U	Francis, Darryl R., III	600 S. 14th, Fort Smith 72901	785-2604
OTO	Gedosh, Edgar A.	600 S. 16th, Fort Smith 72901	782-6022
R	Gill, James A.	1500 Dodson, Fort Smith 72901	782-2071
CD	Gilliland, J. Campbell	1500 Dodson, Fort Smith 72901	782-2071
PTH	Girkin, R. Gene	922 Lexington, Fort Smith 72901	785-1447
RD	Goldstein, Davis W.	7809 Horan Dr., Fort Smith 72903 (Res.)	452-4900
AN	Goodman, Raymond C.	1500 Dodson, Fort Smith 72901	782-2071
EM	Graves, Stephen C.	7301 Rogers, Fort Smith 72903	452-5100
N	Griggs, William L., III	1500 Dodson, Fort Smith 72901	782-2071
ORS	Hathcock, Alfred B.	1500 Dodson, Fort Smith 72901	782-2071
GS	Hawkins, S. Wright	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
U	Hewett, Archie L.	600 S. 14th, Fort Smith 72901	785-2604
GS	Hoge, Marlin B.	320 N. Greenwood, Fort Smith 72901	782-4066
OBG	Holman, James F.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
IM	Holman, William A.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
GS	Holmes, Williams C., Jr.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
IM	Hornberger, Evans Z., Jr.	1311 S. "I," Fort Smith 72901	441-4601
OPH	Hughes, Robert P., Jr.	3000 Rogers, Fort Smith 72901	782-8892
R	Huskison, William T.	318 N. Greenwood, Fort Smith 72901	783-6174
OBG	Hyde, Marshall L.	P. O. Box 3507, Fort Smith 72913	785-2411

Type of Practice	Member's Name	Address	Telephone Number
FP	Ingram, Ralph N.	1120 Lexington, Fort Smith 72901	785-2655
ORS	Irwin, Peter J.	1500 Dodson, Fort Smith 72901	782-2071
GS	Janes, Robert H.	1500 Dodson, Fort Smith 72901	782-2071
EM	Jones, W. Duane	1311 S. "I," Fort Smith 72901	441-4381
GYN	Kelsey, J. F.	P. O. Box 3507, Fort Smith 72913	785-2411
RD	Kennedy, Virgil N.	5417 Grand Ave., Fort Smith 72903 (Res.)	452-3351
CD	Klopfenstein, Keith	1500 Dodson, Fort Smith 72901	782-2071
ORS	Knight, William E.	1500 Dodson, Fort Smith 72901	782-2071
END	Kocher, David B.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
PTH	Koenig, A. S., Jr.	922 Lexington, Fort Smith 72901	785-1447
PTH	Koenig, A. Samuel, III	922 Lexington, Fort Smith 72901	785-1447
O8G	Kradel, R. Paul	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
FP	Kramer, Ralph G.	603 Lexington, Fort Smith 72901	783-8917
RD	Krock, Fred H.	3700 Free Ferry, Fort Smith 72903 (Res.)	783-4832
FP	Kutait, Kemal E.	1120 Lexington, Fort Smith 72901	785-2655
IM	Lambiotte, Louis O.	1500 Dodson, Fort Smith 72901	782-2071
PTH	Landrum, Annette V.	P. O. Box 1684, Fort Smith 72902	782-4983
GS	Landrum, Samuel E.	522 S. 16th, Fort Smith 72901	785-1413
OTO	Lane, Charles S., Jr.	600 S. 16th, Fort Smith 72901	782-6022
AN	Lenington, Jerry O.	1500 Dodson, Fort Smith 72901	782-2071
IM	Lewing, Hugh S.	P. O. Box 3006, Fort Smith 72913	783-3159
D	Lewis, John E.	1500 Dodson, Fort Smith 72901	782-2071
FP	Lilly, Ken E.	1120 Lexington, Fort Smith 72901	785-2655
NS	Lockhart, William G.	1500 Dodson, Fort Smith 72901	782-2071
GS	Lockwood, Frank M.	1500 Dodson, Fort Smith 72901	782-2071
ORS	Long, James W.	1500 Dodson, Fort Smith 72901	782-2071
NS	MacDade, Albert D.	1500 Dodson, Fort Smith 72901	782-2071
**D	Magness, Jack L., Jr.	Oklahoma City, Oklahoma	
IM	Martin, Art B.	1500 Dodson, Fort Smith 72901	782-2071
FP	Martin, Maurice C. (Rick)	P. O. Box 426, Greenwood 72936	996-4111
O8G	Mason, Joe N.	1500 Dodson, Fort Smith 72901	782-2071
GE	Masri, Hassan M.	1500 Dodson, Fort Smith 72901	782-2071
GP	Meador, Don M.	3600 N. "O," Fort Smith 72904	783-5158
R	Mendelsohn, E. A.	1500 Dodson, Fort Smith 72901	782-2071
GS	Mings, Harold H.	1500 Dodson, Fort Smith 72901	782-2071
OPH	Moulton, Everett C., Jr.	3000 Rogers, Fort Smith 72901	782-8992
RD	Murchison, Roary A.	19 Haven Dr., Fort Smith 72903 (Res.)	782-5323
PD	McClain, Merle E.	312 S. 16th, Fort Smith 72901	782-7921
FP	McDonald, H. P.	2044 N. 29th, Fort Smith 72904	782-4833
OPH	McEwen, Stanley R.	3000 Rogers, Fort Smith 72901	782-8892
IM	McMinimy, D. J.	1500 Dodson, Fort Smith 72901	782-2071
D	Niemann, Jeffrey M.	316 Lexington, Fort Smith 72901	783-1121
AN	Nerthum, Charles S.	1500 Dodson, Fort Smith 72901	782-2071
GS	Olson, John D.	1500 Dodson, Fort Smith 72901	782-2071
GE	Paris, Charles H.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
PD	Parker, Joel E., Jr.	617 S. 16th, Fort Smith 72901	783-3165
R	Parker, Thomas G.	318 N. Greenwood, Fort Smith 72901	793-6174
GP	Parta, H. John	3120 Jenny Lind, Fort Smith 72901	782-4986
CDS	Patrick, Donald L.	1500 Dodson, Fort Smith 72901	782-2071
IM	Pence, Eldon D., Jr.	314 N. Greenwood, Fort Smith 72901	782-3001
GYN	Phillips, W. P.	P. O. Box 3507, Fort Smith 72913	785-2411
FP	Pillstrom, Lawrence G.	1120 Lexington, Fort Smith 72901	785-2655
IM	Poe, McDonald, Jr.	314 N. Greenwood, Fort Smith 72901	782-3004
CD	Pope, John R.	1500 Dodson, Fort Smith 72901	782-2071
PD	Post, James M., Jr.	617 S. 16th, Fort Smith 72901	783-3165
CD	Prewitt, Taylor A.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
IM	Price, Lawrence C.	P. O. Box 3006, Fort Smith 72913	783-3158
OTO	Raymond, Thomas H.	600 S. 16th, Fort Smith 72901	782-6022
N	Reul, Charles G.	1500 Dodson, Fort Smith 72901	782-2071
R	Rogers, Paul L.	318 N. Greenwood, Fort Smith 72901	783-6174
FP	Ross, R. W.	1120 Lexington, Fort Smith 72901	785-2655
R	Russell, Rex D.	1500 Dodson, Fort Smith 72901	782-2071
AN	Safranek, Edward J.	216-A N. Greenwood, Fort Smith 72901	783-1497
GS	Saviers, Boyd M.	1500 Dodson, Fort Smith 72901	782-2071
AN	Schemel, William H.	216-A N. Greenwood, Fort Smith 72901	783-1497
A	Schirmer, Roy E.	1420 S. "I," Fort Smith 72901	782-2983
IM	Schwarz, Paul R.	404 S. 16th, Fort Smith 72901	783-3159
N	Serrano, Ernest E.	1500 Dodson, Fort Smith 72901	782-2071
O8G	Sherman, Robert L.	P. O. Box 3507, Fort Smith 72913	785-2411
GP	Shermer, J. P.	623 S. 21st, Fort Smith 72901	783-1520
ORS	Skagerberg, David G.	1500 Dodson, Fort Smith 72901	782-2071
PTH	Smith, Kent	922 Lexington, Fort Smith 72901	785-1447
R	Snider, James R.	P. O. Box 1612, Fort Smith 72902	782-2071
ORS	Stanton, William B.	300 N. Greenwood, Fort Smith 72901	783-0225
PUD	Stewart, Jerry R.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
GP	Stewart, J. B.	603 Lexington, Fort Smith 72901	783-8917
PS	Still, Eugene F., II	1500 Dodson, Fort Smith 72901	782-2071
FP	Swena, Richard R.	302 N. 13th, Fort Smith 72901	785-2426
O8G	Tate, William B.	1500 Dodson, Fort Smith 72901	782-2071
GP	Thompson, James B.	605 Lexington, Fort Smith 72901	782-6081
IM	Thompson, J. Kenneth	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
GP	Thompson, Robert J.	605 Lexington, Fort Smith 72901	782-6081
HEM	Turner, William F.	1500 Dodson, Fort Smith 72901	782-2071
D	Vanderpool, Roy E.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
U	Wahman, Gerald E.	1500 Dodson, Fort Smith 72901	782-2071
OPH	Wallace, Kenneth K.	3000 Rogers, Fort Smith 72901	782-8894
PD	Walling, Robert V.	617 S. 16th, Fort Smith 72901	783-3165
PD	Watts, John C.	500 S. 16th, Fort Smith 72901	783-1085
GS	Weisse, John J.	912 Lexington, Fort Smith 72901	785-2616
IM	Wells, John D.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
EM	Westbrook, Michael R.	1311 S. "I," Fort Smith 72901	441-4381
AN	Westermann, Norman F.	1500 Dodson, Fort Smith 72901	782-2071
O8G	Whittaker, T. J., Jr.	1823 Dodson, Fort Smith 72901	782-4929
END	White, J. Earle	2702 Barry, Fort Smith 72901	783-3126
PH	Whittaker, L. A.	708 Lexington, Fort Smith 72901	782-4961
ORS	Wideman, John W.	300 N. Greenwood, Fort Smith 72901	783-0225
GS	Wikman, John H.	1500 Dodson, Fort Smith 72901	782-2071
CDS	Williams, Carl L.	522 S. 16th, Fort Smith 72901	785-1413
FP	Williams, John R.	100 S. 14th, Fort Smith 72901	785-2431
CD	Williams, Thomas N.	1500 Dodson, Fort Smith 72901	782-2071
OTO	Wills, Paul I.	600 S. 16th, Fort Smith 72901	782-6022
U	Wilson, Carl L.	1500 Dodson, Fort Smith 72901	782-2071

Type of Practice	Member's Name	Address	Telephone Number
U.	Wilson, Morton C.	1500 Dodson, Fort Smith 72901	782-2071
U.	Wilson, Steven K.	1500 Dodson, Fort Smith 72901	782-2071
CDS	Woods, Leon P.	1500 Dodson, Fort Smith 72901	782-2071
RD.	Woods, William M.	Rt. 1, Box 63G, Hackett 72937 (Res.)	638-5301
R.	Worrell, John A.	318 N. Greenwood, Fort Smith 72901	783-6174

SEVIER COUNTY

GS	Balch, James I.	P. O. Box 68, DeQueen 71832	584-3520
FP	Brown, Olie D., Jr.	P. O. Box 391, DeQueen 71832	584-2022
FP.	Buffington, Mike	P. O. Box 391, DeQueen 71832	584-2022
FP	Daniel, J. Frank	Highway 70 West, DeQueen 71832	584-2022
GP.	Dickinson, G. Wallace	P. O. Box 930, DeQueen 71832	584-2022
#	Dickinson, Richard B. (Bill)	DeQueen	
FP	Jones, Charles N.	P. O. Box 391, DeQueen 71832	584-2022
GS.	Norwood William L.	Highway 70 West, DeQueen 71832	584-2022
PD	Parkin, Douglas E.	Highway 70 West, DeQueen 71832	584-2022
FP	Pullen, Wayne G.	P. O. Box 391, DeQueen 71832	584-2022
R	Williams, W. Curtis	Highway 70 West, DeQueen 71832	584-2022

ST. FRANCIS COUNTY

RD.	Chaffin, E. J.	P. O. Box 667, Hughes 72348 (Res.)	339-2398
FP	Cogburn, Harold N.	P. O. Box 4000, Forrest City 72335	633-1425
GP.	Collins, E. Morgan, Jr.	P. O. Box 989, Forrest City 72335	633-1952
FP	Collum, Grady R.	P. O. Box 577, Hughes 72348	339-2111
FP.	Crawley, Charles E.	P. O. Box 4000, Forrest City 72335	633-1425
FP	Fong, Fun H.	P. O. Box 735, Hughes 72348	339-2373
FP.	Hammons, Edward P.	P. O. Box 4000, Forrest City 72335	633-1425
IM.	Hawley, Brian	328 Kittel Road, Forrest City 72335	633-1245
GP.	Hollis, Herbert H.	317 N. Washington, Forrest City 72335	633-4209
GP.	Laney, J. Neal	1740 Lindauer, Forrest City 72335	633-4711
	Lockhart, David L.	Waco, Texas	
FP.	McPhail, George T.	P. O. Box 989, Forrest City 72335	633-1952
FP.	Sexton, Giles A.	P. O. Box 4000, Forrest City 72335	633-1425

UNION COUNTY

PD.	Baldwin, Ronald L.	209 Thompson, El Dorado 71730	862-4994
ORS	Callaway, James C.	516 W. Faulkner, El Dorado 71730	863-6123
FP	Carroll, Peter J.	416 N. Newton, El Dorado 71730	862-5119
RD.	Cathey, A. D.	1200 W. Main, El Dorado 71730 (Res.)	863-3272
U.	Clark, James F.	524 W. Faulkner, El Dorado 71730	863-4267
GP.	Clowney, A. R.	312 Thompson, El Dorado 71730	863-8116
OTO.	Cyphers, Charles D.	519 W. Faulkner, El Dorado 71730	862-3471
GP.	Dunn, Tom L.	P. O. Box 538, Hampton 71744	798-2241
PTH.	Duzan, Kenneth R.	443 W. Oak, El Dorado 71730	862-1351
PTH.	Elliott, Wayne G.	443 W. Oak, El Dorado 71730	862-1351
IM.	Ellis, Jacob P.	P. O. Box 1957, El Dorado 71730	862-5184
OBG	Fitch, Leston E.	38 Meadowbrook Dr., Conway 72032, El Dorado 71730 (Res.)	329-7320
GP.	Harper, John W.	425 W. Oak, El Dorado 71730	863-5135
ORS	Hartmann, Ernest R.	619 W. Grove, El Dorado 71730	863-5146
GS	Henley, Paul G.	700 W. Faulkner, El Dorado 71730	863-9542
GP.	Hill, Grady E.	427 W. Oak, El Dorado 71730	863-7158
R.	King, Billy D.	460 W. Oak, El Dorado 71730	863-2253
OPH.	Landers, Gardner H.	318 Thompson, El Dorado 71730	862-4216
FP.	Moore, Berry L., Jr.	615 W. Grove, El Dorado 71730	863-4185
GS	Moore, John H.	412 N. Washington, El Dorado 71730	862-3411
U.	Murfee, Robert M.	619 N. Newton, El Dorado 71730	862-5439
PD.	McKinney, J. Schuler	209 Thompson, El Dorado 71730	862-4994
R.	Parkman, Robert L., Jr.	P. O. Box 1998, El Dorado 71730	863-2253
GS	Pinson, John H., Jr.	312 Thompson, El Dorado 71730	863-8116
IM	Pirnique, Allan S.	714 W. Faulkner, El Dorado 71730	862-5184
GP.	Riley, W. S.	P. O. Box 1982, El Dorado 71730	863-4508
R	Roesler, Marvin J.	700 W. Grove, El Dorado 71730	864-3371
PD.	Rogers, Henry B.	209 Thompson, El Dorado 71730	862-4994
D.	Sample, Dorothy C.	525 W. Faulkner, El Dorado 71730	862-5485
R.	Schultz, Wayne H.	P. O. Box 1998, El Dorado 71730	862-2253
GS	Scurlock, William R.	412 N. Washington, El Dorado 71730	862-3411
GP.	Seale, James E., Jr.	528 W. Faulkner, El Dorado 71730	863-7154
FP.	Smith, George W.	427 W. Oak, El Dorado 71730	862-7661
AN	Stevens, Willis M., Jr.	460 W. Oak, El Dorado 71730	863-2275
PD.	Sykes, James D.	209 Thompson, El Dorado 71730	862-4994
FP.	Sykes, Robert R.	427 W. Oak, El Dorado 71730	862-5571
FP.	Taggart, Sam D.	1807 Hidden Valley Dr., Benton 72015 (Res.)	778-8264
O8G	Thibault, Frank G., Sr.	416 N. Newton, El Dorado 71730	862-5403
GS.	Tommey, C. E.	412 N. Washington, El Dorado 71730	862-3412
O8G	Turnbow, R. L.	427 W. Oak, El Dorado 71730	863-6157
FP.	Warren, George W.	P. O. Box W, Smackover 71762	725-3471
IM.	Weedman, James B.	P. O. Box 1957, El Dorado 71730	862-5184
GS	Wharton, Joseph B. Jr.	317 Thompson, El Dorado 71730	862-4221
OPH	Williamson, John R.	318 Thompson, El Dorado 71730	862-4216
IM.	Wilson, Larkin M.	714 W. Faulkner, El Dorado 71730	862-5184
OPH	Wilson, Paul H.	514 W. Faulkner, El Dorado 71730	862-5352
OTO	Wise, Jean F.	306 Thompson, El Dorado 71730	862-7918
GS.	Yocum, David M., Jr.	412 N. Washington, El Dorado 71730	862-3411

VAN BUREN COUNTY

GP.	Hall, John A.	P. O. Box 310, Clinton 72031	745-2111
GP.	McBryde, William C.	P. O. Box 3008, Fairfield Bay 72088	884-3399
GP.	Pearce, Charles G.	P. O. Box 51, Clinton 72031	745-2412
RD.	Read, Paul S.	Route 2, Box 277, Fairfield Bay 72088 (Res.)	884-3939
FP.	Stuteville, Orion H.	P. O. Box 397, Leslie 72645	447-2711

WASHINGTON COUNTY

D.	Albright, Spencer D., III	1925 Green Acres Rd., Fayetteville 72701	443-3413
GP	Applegate, C. Stanley	220 Meadow Ave., Springdale 72764	751-4637
ORS	Arnold, James A.	P. O. Box 1608, Fayetteville 72701	521-2752
RD.	Baggett, Jeff J.	P. O. Box 233, Prairie Grove 72753 (Res.)	846-2312
FP.	Baker, Donald B.	241 W. Spring, Fayetteville 72701	521-8260
FP.	Benjamin, George H.	304 S. Maxwell, Siloam Springs 72761	524-3141
FP.	Box, Ivan H.	P. O. Box E, Huntsville 72740	738-2115
PTH.	Boyce, John M.	607 W. Maple, Springdale 72764	751-5711
RD.	Boyer, H. L.	107 N. Star, Lincoln 72744 (Res.)	824-3203

Type of Practice	Member's Name	Address	Telephone Number
U	Brandon, H. B.	Rt. 9, Box 219, Fayetteville 72701	521-8980
RD	Brizzolara, Charles M.	5512 S. Grandview Rd., Little Rock 72207 (Res.)	666-5977
U	Brooks, Walter Ely	Rt. 9, Box 219, Fayetteville 72701	521-8980
P	Brown, Spencer H.	4313 W. Markham, Little Rock 72205	664-4500
FP	Buckley, Carie D., Jr.	767 W. North, Fayetteville 72701	521-3600
PD	Burnside, Wade W.	207 E. Dickson, Fayetteville 72701	443-3471
CD	Butler, G. Harrison	675 Lollar Lane, Fayetteville 72701	521-8200
#	Butt, William J.	Fayetteville	
FP	Capps, James A., Jr.	1215 S. Thompson, Springdale 72764	756-0610
D	Carter, Vernon H.	114 S. College, Fayetteville 72701	521-0400
AN	Chester, Robert L.	660 Lollar Lane, Fayetteville 72701	521-3050
RD	Clark, LeMon	1679 Elmwood, Fayetteville 72701 (Res.)	521-7657
ORS	Coker, Tom P.	P. O. Box 1608, Fayetteville 72701	521-2752
OBG	Cole, George R.	740 Lollar Lane, Fayetteville 72701	521-4433
OBG	Councille, Clifford C.	207 E. Dickson, Fayetteville 72701	442-5377
OTO	Crocker, Thermon R.	102 W. Dickson, Fayetteville 72701	521-1238
GP	Day, John K.	Student Health Services, U of A, Fayetteville 72701	575-4451
OBG	DeSandre, Frank A.	606 S. Young, Springdale 72764	751-6284
AN	Dodson, Charles D.	946 California, Fayetteville 72701	443-3387
FP	Dorman, John W.	P. O. Box 689, Springdale 72764	756-6161
IM	Duncan, Philip E.	675 Lollar Lane, Fayetteville 72701	521-8200
P	Edmisten, Jack	P. O. Box 1108, Fayetteville 72701	521-1221
R	Edmondson, Charles T.	Rt. 3, Box 253, Springdale 72764 (Res.)	751-0492
FP	Etherington, Robert A.	41 Kingshighway, Eureka Springs 72632	253-9746
P	Finch, Stephen B.	530 N. College, Fayetteville 72701	443-3491
OTO	Fincher, G. Glen	2100 Green Acres Rd., Fayetteville 72701	521-3363
FP	Gardner, Buford M.	P. O. Box 730, Fayetteville 72701	443-5291
D	Ginger, John D.	102 W. Dickson, Fayetteville 72701	521-2525
R	Greenhaw, James J.	205 E. Jefferson, Siloam Springs 72761	524-4141
IM	Hall, Joe B.	675 Lollar Lane, Fayetteville 72701	521-8200
R	Harris, Murray T.	P. O. Box 1286, Fayetteville 72701	521-6480
ORS	Harris, W. Duke	P. O. Box 1608, Fayetteville 72701	521-2752
OBG	Harrison, William F.	207 E. Dickson, Fayetteville 72701	442-5377
FP	Hart, Hamilton R.	767 W. North St., Fayetteville 72701	521-3600
RD	Hathcock, P. Loyce	909 Hall Ave., Fayetteville 72701 (Res.)	442-4424
D	Hayden, Carson R.	Evelyn Hills Shopping Ctr., Fayetteville 72701	442-9211
PD	Haynes, James E.	207 E. Dickson, Fayetteville 72701	443-3471
ORS	Heinzelmann, Peter R.	P. O. Box 1608, Fayetteville 72701	521-2754
OPH	Henry, L. Murphey	P. O. Box 1267, Fayetteville 72701	442-5227
OPH	Henry, Louise M.	P. O. Box 1267, Fayetteville 72701	442-5227
OPH	Henry, Morris M.	P. O. Box 1767, Fayetteville 72701	442-5227
IM	Higginbotham, Hugh B.	675 Lollar Lane, Fayetteville 72701	521-8200
AN	Horner, Glennon A.	1730 S. 9th, Rogers 72756	636-3840
FP	Huskins, James D.	304 S. Maxwell, Siloam Springs 72761	524-3141
OBG	Hutchinson, Harry T.	304 S. Maxwell, Siloam Springs 72761	524-3141
A	Hutson, Martha F.	2100 Green Acres Rd., Fayetteville 72701	521-3363
P	Jarvis, Fredrick D.	P. O. Box 1185, Fayetteville 72701	442-5482
NS	Johnson, Jorge H.	P. O. Box 1608, Fayetteville 72701	521-2752
P	Jones, Edwin C.	401 W. Emma, Springdale 72764	751-6993
ORS	Kaylor, Coy C.	P. O. Box 1608, Fayetteville 72701	521-2752
A	Koehn, Laura J.	2100 Green Acres Rd., Fayetteville 72701	521-3363
PD	Lawson, Wilbur G.	207 E. Dickson, Fayetteville 72701	443-3471
RD	Lesh, Ruth E.	356 N. Washington, Fayetteville 72701 (Res.)	442-2163
RD	Lesh, Vincent O.	Pointe Clear Heights, Rt. 6, Rogers 72756 (Res.)	925-1989
OBG	Lushbaugh, Harmon	740 Lollar Lane, Fayetteville 72701	521-4433
GE	Martin, William C.	675 Lollar Lane, Fayetteville 72701	521-8200
OBG	Mashburn, James D.	207 E. Dickson, Fayetteville 72701	442-5377
CDS	Miller, Charles H.	1749 N. College, Fayetteville 72701	521-3300
IM	Moore, Arthur F.	675 Lollar Lane, Fayetteville 72701	521-8200
ORS	Moore, James F.	P. O. Box 1608, Fayetteville 72701	521-2752
FP	Moose, John I.	304 S. Maxwell, Siloam Springs 72761	524-3141
GP	Morgan, Tad M.	Quandt and Young Sts., Springdale 72764	751-9236
GS	Murry, J. Warren	1749 N. College, Fayetteville 72701	521-3300
R	McAlister, Joseph H.	Route 4, Box 188, Huntsville 72740	665-2735
OPH	McAlister, Max F.	P. O. Box 1065, Fayetteville 72701	442-4011
OPH	McDonald, James E., II	461 E. Township Rd., Fayetteville 72701	521-2555
GP	McEvoy, Francis E.	803 Quandt, Springdale 72764	751-9236
PTH	Nettleship, Mae B.	P. O. Box 817, Fayetteville 72701	442-1012
IM	Painter, Monroe B.	675 Lollar Lane, Fayetteville 72701	521-8200
OPH	Parker, Joe C.	700 S. Young, Springdale 72764	751-1028
FP	Parker, Lee B.	241 W. Spring, Fayetteville 72701	521-8260
FP	Patrick, James K.	241 W. Spring, Fayetteville 72701	521-8260
R	Platt, Michael R.	1409 Camino Real, Springdale 72764	751-2388
FP	Power, John R.	220 Meadow Ave., Springdale 72764	751-4637
FP	Puckett, Billy J.	304 S. Maxwell, Siloam Springs 72761	524-3141
GYN	Rabon, Nancy A.	Evelyn Hills Shopping Ctr., Fayetteville 72701	442-8261
R	Riddick, Earl B., Jr.	1617 N. College, Fayetteville 72701	521-6480
GS	Rolufs, Lloyd S.	41 Kingshighway, Eureka Springs 72632	253-9746
OBG	Romine, James C.	740 Lollar Lane, Fayetteville 72701	521-4433
FP	Rouse, Joe P.	767 W. North St., Fayetteville 72701	521-3600
TS	Rudko, Michael	Rolling Hills at Market Ave., Fayetteville 72701	521-6780
NS	Runnels, Vincent B.	P. O. Box 2906, Fayetteville 72701	521-2752
RD	Siegel, Lawrence H.	233 Oakwood, Fayetteville 72701 (Res.)	442-2083
OPH	Singleton, E. Mitchell	P. O. Box 1343, Fayetteville 72701	521-4843
IM	Sisco, Charles P.	P. O. Box 65, Springdale 72764	751-4579
GP	Sisco, Friedman	P. O. Box 65, Springdale 72764	751-4579
GP	Smith, Austin C.	P. O. Box E, Huntsville 72740	738-2115
FP	Steadman, Hunter M., Jr.	41 Kingshighway, Eureka Springs 72632	253-9746
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	House of Delegates	
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January, 1978

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY. *Journal.*

Vol. 74 No. 8

FORT SMITH, ARKANSAS

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Arkansas Children's Hospital Burn Center

Thermal Injury in Children

C. R. Magness, M.D., Fred T. Caldwell, Jr., M.D., Bonny Bowser, B.S., and Lynn Baird, R.N.

Outline:

- 1) Introduction
- 2) Experience
- 3) Resuscitation Protocols
- 4) Topical Therapy Protocols
- 5) Bacteriological Monitoring
- 6) Wound Coverage
- 7) Initial Management Guidelines
- 8) Summary

Introduction:

The purpose of this paper is to acquaint the reader with the recent clinical experience of the Arkansas Children's Hospital Burn Center (ACHBC) in Little Rock, Arkansas. Current methods of wound management and grafting techniques will be presented. Guidelines for the initial management of burned patients will also be presented. Clinical studies underway of major problems in burn care will be reviewed.

Review of Clinical Experience:

July 1975 - July 1977

In July 1975, the care of burned children at the Arkansas Children's Hospital became the responsibility of the director of the Center. Since that time, resuscitation, topical wound therapy, wound coverage and patient follow-up have for the most part been standardized. A multi-discipline burn follow-up clinic has been established. The consulting and treatment capacity of all services are available to help care for the burned child treated at ACHBC. Heavy demands are placed on the following services: Pediatrics (including Neurology and Psychiatry), Plastic Surgery, Ophthalmology, Orthopedics (including a separate hand service), Neurosurgery and Physical Therapy.

The Burn Center consists of a hospital wing containing twelve beds with a nursing staff devoted exclusively to the care of burn patients. A separate suite of four rooms, including three dressing rooms and a complete operating theater, is used for dressing changes and operative procedures. A separate staff assists with dressing changes and operative procedures. The ACHBC is a regular rotation for general surgical residents in the training program at the University of Arkansas for Medical Sciences. Table I shows a breakdown of the number of patients treated at the ACHBC from May 1976 through April 1977. There has been a steady increase in the number of procedures for burned patients, reaching approximately 500 per month of June 1977.

Table II shows the distribution of 313 burn patients according to percent of the body surface area burned, and the expected and observed mortality for each size category. Expected mortality is derived from Bull's tables for estimating mortality rates due to thermal injury.¹

Resuscitation Protocols:

Patients with burns covering less than 30 percent of the body surface area (BSA) are resuscitated with hypotonic salt solution given by mouth. Patients with thermal injuries covering more than 30 percent of the BSA receive intra-

TABLE I
May 1976 - April 1977
Burn Admissions

Inpatients	81
Outpatients	94
Total Treated	175
<i>Dressing and Surgery</i>	
Inpatients	2626
Outpatients	637
Total Treatments	3263

Average Monthly Treatments 272

Arkansas Children's Hospital, 804 Wolfe, Little Rock, Arkansas 72202.

venous resuscitation using either standard hypotonic salt solutions or hypertonic lactated saline. Those patients resuscitated with hypotonic solutions receive 2 ml/kg Body wt/% BSA burn of lactated Ringer's solution during the first 24 hours postburn. One half of the volume is given during the first eight hours postburn, one quarter during the second eight hours, and one quarter during the third eight hours postburn. During the second 24 hours postburn, patients in the hypotonic group receive 1 ml/kg Body wt/% BSA burn of lactated Ringer's solution given at a steady rate through the 24 hour period. The daily free water requirements for each patient are calculated (see Table IV) and given as intravenous 5 percent dextrose in water. The hypotonic protocol is summarized in Table III. Fluid

requirements of patients with burns covering greater than 50 percent of the BSA are calculated based on 50 percent of the BSA, because the correlation between volume requirements and size of burn injury do not hold true for injuries larger than 50 percent of the BSA. On postburn days three, four and five, treatment consists of giving oral salt free fluids equal to the patient's urine volume and estimated insensible fluid loss during the preceding 24 hour period. Serial determinations of serum and urine electrolyte concentrations and osmolalities, and large vessel hematocrits are routinely performed to assist in evaluating the course of treatment.

Those patients treated with hypertonic lactated saline (HLS)² receive 2 ml/kg Body wt/% BSA burn of HLS during the first 24 hours postburn, one half of which is given during the first eight hours postburn, one quarter the second eight hours, and one quarter the third eight hours postburn. During the second 24 hours postburn, the HLS group receives 0.6 ml/kg Body wt/% BSA burn of HLS given at a constant rate for 24 hours. These patients are also allowed one third normal salt solution by mouth (Haldane's solution). The volume allowed is determined by calculating each patient's free water requirements (see Table IV).

At 48 hours postburn the HLS group is given salt free water by mouth; the volume given is again based on the calculated free water requirements.

Developments which require termination and/or modification of the HLS treatment include a serum sodium concentration of 160 mEq/L or greater, or a serum osmolality of 340 mOsm/kg or more. If these values occur during the first 48 hours postburn, salt free water is given by vein and mouth.

Topical Therapy Protocols:

All burn wounds are treated with occlusive dressings which are changed daily. Early debridement consists of daily removal of all resid-

TABLE II
Arkansas Children's Hospital Burn Center
(July 1975 to May 1977)

% BSA-Burn	No. of Pts.	Deaths	
		Expected	Observed
0 - 19%	273	0	0
20 - 39%	26	1.1	0
40 - 59%	8	1.4	1
60 - 100%	6	3.8	1
TOTAL	313	6.3	2

TABLE III
Hypotonic Protocol
First 24 Hours Ringer's Lactate
2 ml/kg Bw/% BSA Burn

1/2 first 8 hrs.
1/4 next 8 hrs.
1/4 following 8 hrs.

Estimated free water requirement given as 5% dextrose in water.

Second 24 Hours Ringer's Lactate
1 mg/kg Bw/% BSA Burn

Given at an hourly rate.
Estimated free water requirement given as 5% dextrose in water.

Third, Fourth and Fifth Postburn Days
No intravenous fluids are usually given. Salt free fluids are given by mouth. The volume is determined as equal to urine output and estimated insensible water loss for the previous 24 hour period. Insensible water loss is estimated as follows: total intake minus urinary output, minus any gain in body weight, or plus any loss in body weight.

TABLE IV Free Water Requirements in Children	
Age	Requirements
0 - 2 years	150cc/kg/24 hrs.
2 - 5 years	100cc/kg/24 hrs.
5 - 8 years	75cc/kg/24 hrs.
8 - 12 years	50cc/kg/24 hrs.
Adults	2000cc/24 hrs.

ual topical agents using gauze and saline; all loose material on the wounds is removed without inducing undue pain or bleeding. Patients are frequently premedicated for dressing changes and non-surgical debridement, but general anesthesia is not used in the early postburn period. With progression of the burn wound, dressing changes may result in unbearable pain and psychological trauma so that various anesthetic agents may be used to control pain. Penthrane administered by face mask is the most commonly used agent. Penthrane has excellent analgesic and amnestic qualities and furthermore, is given without overnight fasting. If required, Ketamine is used for both dressing changes and surgical procedures. In general, this agent works extremely well with children, but since the gag reflexes are suppressed during Ketamine anesthesia, the patients are required to fast before receiving Ketamine anesthesia. Thus, the daily use of anesthetic agents required withholding oral food and water, will result in greatly accelerated rates of body weight loss.

Burn injuries covering less than 30 percent of the BSA are treated with fresh daily applications of topical silvadene. With burn injuries covering more than 30 percent of the BSA, topical treatment is assigned using either silvadene or cerium-silvadine.⁴ Cerium, a rare earth element with bacteriostatic and bacteriocidal qualities, has been recommended as improving topical control of bacterial growth in patients with large burns. No critical evaluation of this material has been performed. Since preliminary studies appear quite promising, the recent study was begun to evaluate cerium. All burn wounds are cultured initially and two times weekly thereafter using quantitative surface cultures.⁵ The method consists of placing pieces of cottonoid saturated with lactated Ringer's solution on the burn wounds for five minutes followed by volumetric dilution in a fixed volume of saline. From this diluant, aliquots are added to media for pour plates. Colonies are counted at 24 hours, and the contact density of bacteria on the wound then calculated. This method correlates well with tissue

TABLE V

Composition of Hypertonic Lactated Saline	
Sodium	250 mEq/liter
Chloride	100 mEq/liter
Lactate	150 mEq/liter

biopsy methods. Bacterial concentrations of 10^5 or greater per cm^2 of burn wound indicates burn wound colonization and impending burn wound sepsis, and may warrant systemic antibiotic therapy and/or change in topical treatment to regain bacteriological control of the wounds.

In the past two years burn wound sepsis has not been a major problem in the ACHBC. Burn wound sepsis remains, however, the number one cause of death following burn injury.

Wound Coverage:

Full thickness burn wounds when cleared of eschar and free of bacteria receive skin grafts. Large injuries with inadequate donor sites to allow coverage may be covered with porcine or cadaver skin when the wounds are clean and no autogenous donor area is ready for harvesting. Most split grafts applied to trunk and non-flexing portion of the extremities are cut at 8-10/1,000 of an inch in thickness and then meshed 1.5×1 . Meshing not only expands coverage but also allows open drainage of serum or blood from under the grafts and thus decreases the chance of graft failure. Donor sites harvested at 8-10/1,000 of an inch heal in approximately 14-20 days.

Donor areas harvested at thickness of 12/1,000 of an inch or thicker require much longer to heal, and the resulting surface is a poor donor area for a prolonged period. In addition, infection and conversion to full thickness injury are more com-

TABLE VI

Hypertonic Lactated Saline Protocol (HLS)

First 24 Hours HLS

2 ml/kg Bw/% BSA Burn

1/2 first 8 hrs.

1/4 next 8 hrs.

1/4 following 8 hrs.

No additional free water given.

Second 24 Hours HLS

0.6 ml/kg Bw/% BSA Burn

Given at an hourly rate.

Haldane's solution is given by mouth after 24 hours at a rate equal to the calculated rate of insensible loss for the previous 24 hours. (See Table III for calculation of insensible loss.)

After 48 hours, salt free oral fluid is given at an hourly rate equal to the calculated rate of insensible water loss and urine output for the previous 24 hour period.

mon in recipient sites grafted with thicknesses greater than 10/1,000 of an inch.

For appearance and function, thick split grafts are much more satisfactory. With large injuries, however, coverage takes first priority, for as long as large areas of burn wound remain ungrafted, the patient is at risk for his life.

Initial Management Guidelines:

Children with fresh burn injuries covering 30 percent or more of the BSA should not be transported long distances without : (1) a plastic intravenous catheter, (2) indwelling Foley urinary catheter, and (3) a sterile dressing on the burn wounds. An accurate record should be kept of the urine output and fluids administered during transport. During transport, the preferred fluid to administer is lactated Ringer's solution given at a rate of 50-100 ml/hour. The initial examination of the patient should include inspection for evidence of smoke inhalation. How and where the injury occurred will give reliable indications of the likelihood of inhalation injury. House fires and fires in confined spaces are frequently responsible for inhalation injury while fires occurring outside are not.

Analgesics for transport should be given in small intravenous doses. Subcutaneous and intramuscular routes are not reliable due to the low flow state usually associated with large burn injuries. Table VII outlines the guidelines for the care of the burn patient to be transported.

Summary:

The ACHBC is a facility for the care of burned children from the State of Arkansas.

The current methods in use for resuscitation and wound care have been outlined.

Any burned person under the age of 21 years is eligible for admission. Burn Center personnel are on call 24 hours a day and can be reached by calling: 501-376-4621.

TABLE VII

Initial Management Guidelines

- (1) Inhalation injury — 40% humidified oxygen.
- (2) Circumferential full thickness burns of extremity with vascular compromise — escharotomy.
- (3) Intravenous line with lactated Ringer's — 50-100cc/hr.
- (4) Foley urinary catheter — hourly output, save all urine.
- (5) NPO — NG tube for gastric atony to prevent vomiting and aspiration.
- (6) IV morphine for analgesia.
- (7) Saline compresses for partial thickness burns and dry dressings if patient is transferred.
- (8) Tetanus immunization and penicillin prophylaxis as needed.

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Urologic Care of the Patient with a Spinal Cord Injury

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Introduction

Evaluation of patients who sustained spinal cord injuries during World War II revealed that the most common cause of long-term mortality in these patients was renal failure. Patients sustaining spinal cord injuries in subsequent wars have experienced a much lower mortality rate because of renal failure. From these statistics it is evident that newer and more standardized diagnostic and therapeutic techniques have been the key. The purpose of this communication is to review the basic urologic management of the patient with a spinal cord injury.

Anatomy and Physiology of the Lower Urinary Tract

An understanding of the anatomy and physiology of the lower urinary tract is basic to understanding the management of the urinary tract following spinal cord injury. Spinal cord injury does not, per se, alter the anatomy or function of the kidneys. The kidneys continue to function normally and excrete urine into the collecting structures. However, the function of the lower urinary tract, storage and evacuation of urine, depends upon an intact nervous system. Alteration of the nerve supply to the lower urinary tract will alter its storage and evacuation function which can subsequently result in damage to the kidneys. The bladder, urethra and external urethral sphincter act together as a single functional unit. They are all innervated by a spinal reflex arc originating in sacral segments 2, 3 and 4. The reflex arc receives sensory impulses from the bladder and discharges motor impulses reflexively to the bladder and external sphincter. Conscious, voluntary control is mediated through long tracts in the spinal cord which connect the sacral centers of micturition with higher centers in the brain stem and cerebral cortex. These connections influence the reflex arc by initiating voluntarily the emptying of the bladder and also "dampen" the reflex arc by preventing intermittent reflex contractions of the bladder during filling and storage thus maintaining a low pressure storage system.

The act of micturition requires an impulse down the long spinal tract which releases inhibition of the spinal arc and initiation of motor impulses to the bladder musculature and external urethral sphincter. The result is a contraction of the bladder musculature and a reflex relaxation (opening) of the external sphincter.

Cord injuries cephalad to the sacral arc result in interruption of the long spinal tracts and thus interruption of cortical control of the bladder. The sacral reflex arc is intact though and thus the bladder functions reflexively and stronger than normal (uninhibited) contractions may occur. This is analagous to the bladder of a neonate with no cortical initiation or inhibition. Unfortunately, by some yet unexplained mechanism, the external sphincter does not always reflexively relax with contraction of the bladder in cord injured patients which causes excessive intravesical pressures.

Injuries involving the sacral arc interrupt the final nerve pathways to the bladder and external sphincter. With no motor sensory innervation of these structures they are able to carry out their storage function but are unable to intrinsically evacuate urine voluntarily or reflexively.

Management

Initial Management: The cardinal rule of managing the urinary tract in the spinal cord injured patient from the onset of injury is "to provide low pressure drainage of the urinary bladder."

The immediate concern on initial urologic evaluation evaluating the spinal cord injured patient is direct urinary tract trauma. Evaluation should include a urinalysis to rule out hematuria, evaluation of the perineum to rule out urinary extravasation, and evaluation of the suprapubic area and flanks with attention directed toward tenderness, ecchymoses or masses. If any of these are present, urologic consultation should be obtained. If hematuria is noted, an intravenous pyelogram and cystogram should be obtained. Do not under any circumstances pass a urethral catheter if blood is noted at the external urethral meatus without first obtaining a urethrogram to rule out urethral trauma.

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After urinary trauma is ruled out insert a 16 or 18 F Foley catheter per urethra and connect it to dependent drainage. Pass the catheter as atraumatically as possible. If any resistance is met in passing the catheter, urologic consultation is recommended before attempting further to pass the catheter.

Following spinal cord injury a period of neurologic stabilization ensues for up to six weeks. During this time no definite long-term deficit can be ascertained and subsequent management of the urinary tract will depend upon ascertaining the final status of the nervous system. Generally a definitive evaluation of the urinary tract is deferred about six weeks post injury.

During this stage of "stabilization" the urologic management should include catheter care, evaluation of renal function and close monitoring of the patients neurological status.

The urethral catheter should be connected to dependent drainage by a closed collecting system. The urinary drainage bag should never be elevated above the level of the bladder, a particular problem when transporting patients.

Do not intermittently clamp the catheter under any circumstances. The bladder will retain its inherent tonicity without periodic distention. Alternatively, intermittent clamping of the catheter can result in over distention of the bladder and the resultant sequela of urinary tract infections or decompensation of the bladder muscle.

Intermittent irrigation of the catheter with acetic acid or antibiotics does not keep the urine sterile and is generally not indicated. Three-way catheters with continuous bladder irrigation is time-consuming, expensive and of doubtful value.

If the catheter becomes plugged or doesn't drain well, gentle irrigation with saline may restore drainage. If free drainage is not restored the catheter should be changed.

Evaluate the urethral meatus in males daily for evidence of catheter-induced urethritis. If there is evidence of urethritis (purulence from the meatus) urologic consultation is recommended. Topical antibiotics or steroids applied to the meatus or catheter are of doubtful value in preventing urethritis.

The urethral catheter should be changed about every two weeks.

All patients with indwelling urethral catheters will develop urinary tract infections characterized by pyuria and bacilluria. The presence of an infected urine per se however, is not an indication for treatment of the urinary tract infection. Acidification of the urine may be tried but it is difficult to achieve a persistently acid urine and is of questionable value. Antimicrobial therapy directed toward sterilizing the urine is not indicated unless the patient develops systemic signs of sepsis and/or pyelonephritis such as fever or flank tenderness. If the patient develops sepsis and/or pyelonephritis, culture the urine, begin parenteral antibiotics, obtain an excretory urogram and obtain urologic consultation.

During this six weeks period a blood urea nitrogen and serum creatinine should be obtained each week; more frequently if there is evidence of abnormal renal function. Many parenteral antibiotics are potentially nephrotoxic and patients receiving these drugs should be followed closely with renal function tests.

Urine cultures and sensitivities should be obtained each week as a baseline. The patient should not be treated on the basis of a positive culture unless symptoms of sepsis or pyelonephritis are present.

Obtain a baseline intravenous pyelogram as soon as the patient stabilizes.

Serial assessment of the patient's neurological status should include an evaluation of the bulbocavernosus reflex and perineal sensation as a means of evaluating the S₂₋₄ reflex arc.

If urologic consultation has not previously been obtained it should be obtained during this 6 week period.

Subsequent Assessment: The functional status of the lower urinary tract is evaluated at approximately six weeks by combining a systometric examination with electromyography of the external urinary sphincter. In this manner the integrity of the sacral reflex arc, the influence of the higher cortical centers and the coordination of the external sphincter with the bladder muscle function can be assessed.

Patients with cord lesions cephalad to the sacral 2-4 arc generally develop what is termed reflex or spastic neurogenic bladders. The sacral arc is intact and hence involuntary motor power to the bladder is preserved. These patients ex-

hibit reflex contractions of the bladder when the bladder is distended. If the external sphincter reflexively relaxes with the bladder contraction the patient will reflexively void.

Patients with lesions involving the sacral arc develop autonomous or flaccid neurogenic bladders. The bladder motor function is diminished or absent and the bladder is unable to evacuate itself voluntarily or reflexively.

Incomplete lesions can result in a wide spectrum of bladder disorders ranging between the extremes of the spastic and flaccid bladder.

Long-term Management and follow-up: When neurologic stabilization has occurred urinary tract rehabilitation and long-term management can begin. The principal goal of therapy is to provide low pressure drainage to the urinary bladder in the most socially and emotionally accepted manner. Several proven modalities of long-term therapy are available today.

1) Crede voiding consists of increasing intravesical pressure by increasing intra-abdominal pressure through Valsalva maneuvers or manually compressing the lower abdomen. Crede voiding is effective if outlet resistance remains low during voiding.

2) Indwelling Catheters: Patients may be managed on a long-term basis with indwelling urethral or suprapubic catheter drainage. Suprapubic catheters have no distinct advantage over urethral catheters in females but they do overcome the problem of urethritis in males. The disadvantages of indwelling catheters are the need for drainage bags, the problem of bladder calculus formation and the problem of catheter plugging resulting in bladder distention and sepsis.

3) Intermittent Catheterization: The modality of clean, intermittent self-catheterization has now been accepted as an excellent modality of bladder drainage. The patients catheterize themselves in a clean but non-sterile manner at frequent intervals. The modality approaches the normal physiologic storage and evacuation cycle of the bladder and negates the need for external appliances and indwelling catheters. The disadvantages in the opinion of physicians unfamiliar with this technique is that the bladder is emptied in an unsterile manner. It has been shown in hundreds of patients that about 50 percent of patients maintain sterile urines if they

catheterize themselves correctly. Fifty percent of patients will have urinary tract infections but only a very few develop sepsis, pyelonephritis or upper urinary tract deterioration. Most patients are likewise not maintained on antibiotic therapy.

4) Reflex Voiding: Patients with upper motor lesions and a resultant reflex neurogenic bladder can be considered for maintenance on reflex voiding. Patients with reflex bladders and a coordinated external sphincter can be maintained on an external or condom catheter. With bladder distention they reflexively void into the condom drainage catheter. These patients can also be taught to trigger their bladder to reflexively contract by sharply striking their suprapubic region. Patients with reflex bladders and outlet resistance secondary to prostatism, stricture disease, spasticity of the bladder neck or an uncoordinated external sphincter must be relieved of their outlet obstruction before being maintained on a reflex voiding program. The outlet resistance can be relieved surgically (prostatic resection, repair of stricture or external sphincterotomy) or medically with sympathetic blocking drugs.

5) Urinary Diversion: Diverting the urine at the bladder level or suprapubically is favored by many physicians. Conduits can be constructed from segments of small or large intestine. A cutaneous vesicostomy can be constructed which consists of exteriorizing the bladder to the abdominal wall. Other forms of diversion include cutaneous ureterostomies and nephrostomies. All of these diversion techniques requires external appliances to collect the urine but with training most patients accept these well.

6) Other Modalities: Implantable electrodes in the bladder wall which initiate bladder emptying by electrical stimulation are presently in the experimental stage and are not clinically reliable at present.

Also available are many drugs which may be utilized to augment or depress bladder function to assist in long-term care of the urinary tract.

Summary

The anatomic and physiologic basis for the urologic sequelae of spinal cord injuries are outlined. A brief discussion of the urologic management of these patients is presented.

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Office Orthopaedics

Extension-Flexion Trauma to the Cervical Spine

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Injuries to the cervical spine are a frequent cause of discomfort and prolonged disability in our current age of automobile transportation. The most common mechanism of injury producing trauma to the cervical spine is the rear-end type collision, in which a driver or passenger of an automobile which is sitting still is struck from behind by another vehicle. The sequence of events in which the cervical trauma occurs is reasonably well understood and agreed upon. The cervical spine initially goes into hyperextension as the body is accelerated forward and the weight of the head is thrown posteriorly. In rebound the head goes forward as the vehicle stops and the cervical flexion occurs. Less commonly, injuries to the neck are caused by various sporting activities, notably contact sports such as football and rugby in which the neck is subjected to considerable torsional and angular stresses.

The degree of excursion possible for the cervical spine in extension is considerably greater than that in flexion, as the arc of travel is limited only by the patient's posterior thorax or possibly an automobile seat, when the head rest devices are not employed. The excursion in flexion is limited by the chin striking the chest, the auto steering wheel, or possibly the dash board. In lateral excursion, the head usually strikes the shoulder, thereby limiting the degree of angular distortion possible.

Usually the damage to soft tissues is more serious anterior to the vertebral column, due to

the extreme stretching incurred during the hyperextension phase of the injury. Sternocleidomastoid muscles, the strap muscles of the neck and the anterior longitudinal ligament may be partially or entirely divided. If the forces involved are great enough, fracture of the vertebrae with or without rupture of the intervertebral discs may occur. In the rebound flexion stress, the posterior structures of the cervical complex including supraspinous, interspinous or the dorsal spinous processes may be disrupted. Usually the spinal cord and the spinal nerve roots are not directly damaged in the initial trauma, but may become compromised later as swelling of the soft tissue surrounding them becomes pronounced, in the absence of a fracture dislocation.

The classic extension-flexion mechanism of injury as described above usually does not occur in its pure form. Generally the cervical spine is held in some degree of rotation before the angular acceleration occurs, and this twisting of the neck is more likely to result in a fracture of the articular processes or the vertebral bodies themselves. Therefore, an accurate knowledge of the details of the inciting trauma can be of considerable assistance in being alerted to look for fractures.

The physical findings noted in patients subjected to cervical spine trauma are somewhat variable, but in general follow a well recognized pattern. If examination is carried out within the first few hours following such an injury, signs and symptoms may be quite minimal. Repeat examination 12 to 24 hours later, however, usually reveals considerable tenderness and swelling

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of the paraspinous cervical musculature, sternocleidomastoid muscles and trapezii. Tenderness may also be found over the dorsal spinous processes and the interspinous ligaments. Neurological evaluation of the cranial nerves and the brachial plexus branches should always be carried out, although these usually are found to be within normal limits in the absence of bony injury. The range of motion of the cervical spine in all planes must be determined, and is usually noted to be limited to a variable extent with the most striking limitations noted to be in side bending and rotation. These limitations are usually the result of muscle spasm and pain associated with the injury.

The patient's complaints may be numerous and difficult to relate directly to the events of the accident. Headache, neck ache, dizziness, blurred vision, transient amnesia and a loss of ability to concentrate, pain and aching along the eyes and over the occipital scalp are frequently noted complaints. Radiation of pain as far laterally as the shoulders, or even farther distally into the arms, forearms or hands may occur. These have been recognized to be helpful prognostic indicators and if present early, the prognosis for an early complete recovery is unlikely.⁵ Some physicians feel that the presence of interscapular or upper back pain at the time of the examination is a better indicator of the likelihood for early recovery.³

X-ray evaluation for cervical spine injuries should generally include adequate films in the antero-posterior, lateral (to include the seventh cervical vertebra), odontoid open mouth, obliques, and lateral views in flexion and extension. It is now recognized that thin section tomography can reveal fractures which are not apparent even on the best plain X-rays, or similarly can rule out false positive findings.¹ Even newer techniques such as computerized axial tomography are now being evaluated for detecting subtle fractures such as those on the ring of C-1. X-ray findings must be closely correlated with the clinical complaints and physical findings and special angles such as pillar views may be indicated to delineate occult fractures. It is felt by some that tilting of the odontoid process in either the AP or lateral view may be the only direct evidence of fracture of the odontoid as the fracture line may not be visible on plain X-rays.

The prevertebral soft tissue shadow seen on the lateral view of the cervical spine at the level of the anterior inferior border of the third cervical vertebra was found to be 2.6 to 4.8 mm thick in normal patients and it is felt that if this shadow is greater than 5 mm wide it offers indirect evidence of cervical spine injury.⁶ There is normally a lordotic curvature of the cervical spine as noted on lateral views, and loss or sharp reversal of this curvature may indicate posterior neck muscle disruption or anterior neck muscle spasm. It has been pointed out, however, that approximately 20% of the patients have either a straight or kyphotic curvature of the neck with the head in neutral position, and if the chin is lowered one inch from neutral, 70% of patients have no lordosis.⁵ In flexion-extension lateral views the offset of the posterior border of one vertebral body relative to the adjacent one should be no more than 3 mm in adults but may be as much as 5 mm in children without injury being present.⁶ These dynamic views may provide a true guide to the amount of limitation of motion of the cervical spine, as many examiners have noted a gross discrepancy between the range of motion obtainable during the physical examination and that evidenced by the neck excursion on the X-ray studies.

Although fractures infrequently occur in the average rear-end traffic collision, they do occur and may be of considerable clinical importance. Avulsion fracture of the dorsal spinous processes is of no serious clinical consequence, as this is only a source of discomfort and heals uneventfully with minimal stabilization. Compression fractures of the vertebral bodies may be difficult to perceive by direct inspection of X-rays, but must be suspected in the presence of an abnormally widened prevertebral soft tissue shadow. Significant instability between bony segments may occur as a result of fractures of the vertebral pedicles or articular processes. These may be very difficult to illustrate except with unusual X-ray views, tomography or computerized axial tomography. A useful technique in evaluating patients with continuing complaints is follow up X-rays taken 10 to 14 days following an accident, as resorption at fracture lines may render a bony infraction clearly visible at that time. It is not the intention of this brief resume of cervical spinous injuries to review the multitude of fractures which may occur in the cervical spine, but

these fractures must be ruled out before stability of the cervical spine can be assumed.

Treatment for cervical injuries varies considerably from one physician to another. It is agreed that treatment must be individualized along several parameters—the amount of violence sustained in the accident, the personality of the patient, whether litigation is pending concerning the accident, and the presence of pre-existing disorders in the patients involved. In the more severely injured patient, bed rest with a soft cervical collar, with or without cervical traction, appropriate analgesics and muscle relaxants are used as indicated. These patients are in the relative minority of the entire group of patients with soft tissue cervical injury. For the “average” patient with soft tissue injury of the neck, several different regimens have been advocated. The traditional treatment with the soft cervical collar, muscle relaxants, heat, and pain medication is widely utilized. This regimen is also well recognized to have its liabilities, as patients were frequently treated with high doses of tranquilizers, dispensed under the guise of “muscle relaxants.” The cervical collar may be seized upon by the patient and/or his attorney as evidence of organic pathology.

Physical therapy has been used in various capacities—intermittent cervical traction, ultrasound, heat, intermittent electrical muscle stimulation, and massage—with varying degrees of success. The consensus relative to the use of physical therapy appears to be that this modality should be used if efficacious in relieving symptoms and should be continued for a few weeks following the injury, but is of questionable value when administered over a prolonged period of time. Recently it has been demonstrated that isometric neck exercises may be utilized in the treatment of “the cervical syndrome” with good results.³ It is thought important by most physicians treating these injuries that the patient return to his normal activities as soon as possible, preferably within a few days following the accident.

Complications of these injuries are not uncommon. If dizziness is persistent for one to two weeks following the accident and seems to have an organic basis, evaluation by an otolaryngologist may be in order to evaluate possible damage to the semicircular canals. Persistent headaches of debilitating nature may require evaluation by a neurologist or a neurosurgeon. Litigation pending relative to the inciting trauma, unfortunately, seems to have a detrimental effect on the recovery rates of patients involved and when settlements can be reached early this appears to be beneficial.

The clinical course of patients sustaining soft tissue extension-flexion injury of the cervical spine may be quite prolonged and may run as long as eight to twelve weeks. Many of the less severe injuries are completely resolved in two to three weeks.

In summary, the evaluation and care of patients sustaining injury to the cervical spine is not an unusual part of office orthopedics and frequently becomes a trying dilemma for the physician and patient involved, as these injuries seem to respond quite variably to any one method of treatment. Early evaluation by appropriate consultants and early settlement of litigation, as well as appropriate medical treatment, seem to contribute favorably to the recovery and return to normal activity of these patients.

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ELECTROCARDIOGRAM

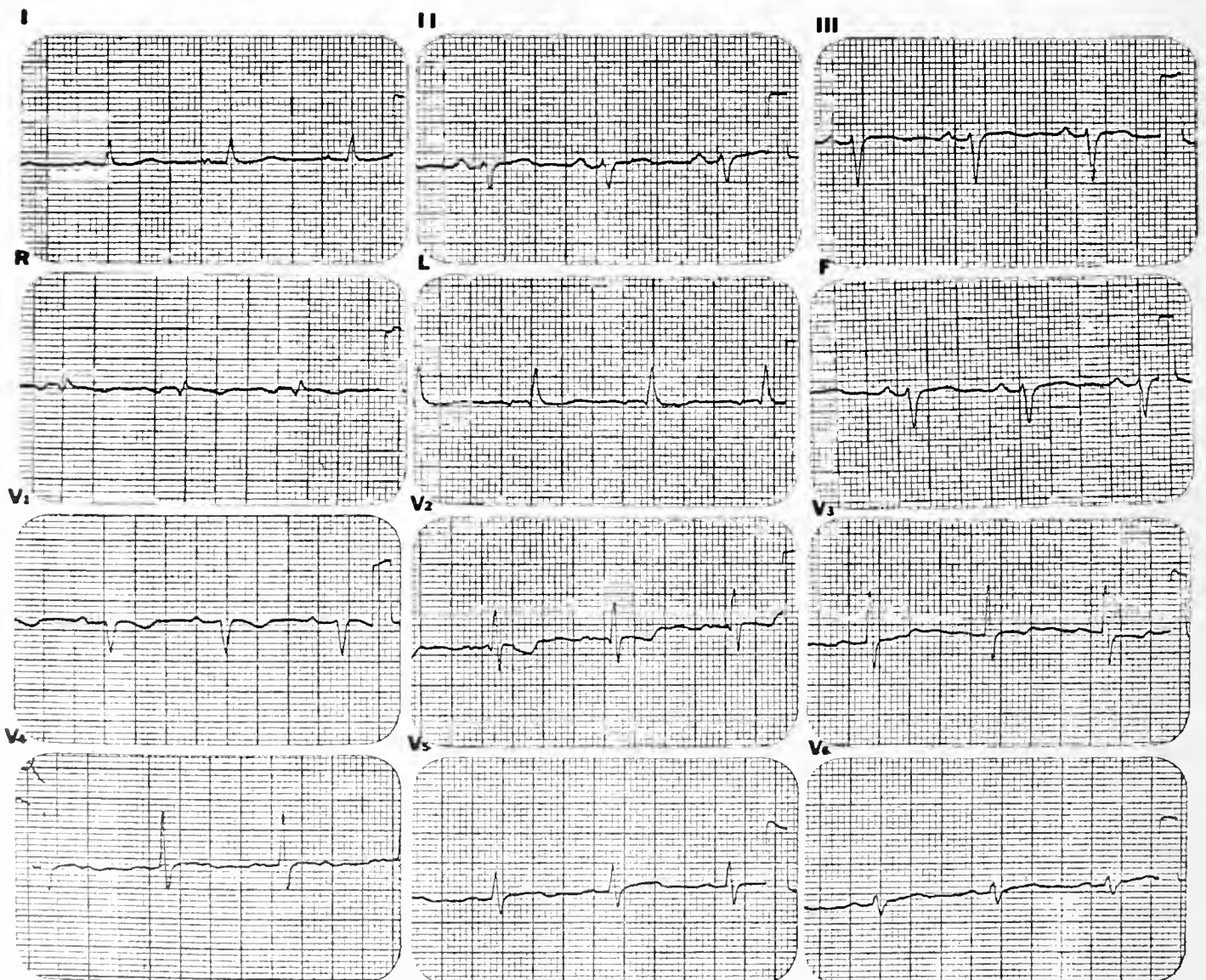
OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 327)

This is a 43-year-old white female, who presents with chronic heart failure.



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Little Rock, Arkansas 72201



Traumatic Lesions of the Metatarsophalangeal Joint of the Great Toe in Athletes

Tom P. Coker, M.D.,* James A. Arnold, M.D.,* and Dean L. Weber, C.A.T.**

Significance

An increasing number of acute injuries to the first metatarsophalangeal joint and to the surrounding structures are becoming a significant problem to athletes, coaches, trainers and physicians. These injuries are seen in several sports but most commonly in football. The uses of both artificial turf and unsafe footwear are suspect as playing a part in the increased incidence of traumatic lesions to the joint of the big toe. Seemingly, players and coaches are more interested in a light-weight athletic shoe which shows the characteristics of good traction than in possessing adequate structural support for the foot.

In an effort to determine the magnitude of traumatic lesions, ninety-four questionnaires were sent to athletic trainers of large colleges and universities throughout the United States. Colleges were selected irrespective of geographic areas. Sixty-six colleges answered for a 70% response level. The questionnaire asked if metatarsophalangeal joint injuries were increasing or decreasing, and if they were a significant problem to their athletic program.

The respondents overall comments confirmed the findings at the University of Arkansas where experiences during the 1972, 1973, and 1974 seasons were analyzed. 1972 was the fourth year for Arkansas to play on Astroturf. The metatarsophalangeal joint injury was compared with ankle sprains, since the significance of this latter injury has already been determined. The factors used in the comparison were the number of injuries sustained, the number of missed practices, and the number of missed games (Fig. 1). During these three years of the comparison the Arkansas football players sustained 74 ankle sprains, and just 18 toe injuries. However, the

Figure 1.

Ankle and toe injuries at the University of Arkansas for the 1972, 1973 and 1974 football seasons.

University of Arkansas 1972, 1973, 1974 Football Seasons

	<i>Injuries</i>	<i>Missed Practice</i>	<i>Missed Games</i>
ANKLE	74	152	6
TOE	18	92	7

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number of missed practices for ankles were 152, while there were 92 for the toe. Ankle sprains accounted for only six missed games and the toe problem for seven. It is evident, therefore, that although the incidence of ankle sprain outweighed that of toe injury, the latter was more disabling to the player, and this problem is indeed significant.

Possible Responsible Factors

In the questionnaire sent to the trainers, 36% felt the turf was the primary responsible factor in the toe injuries; 21% indicated the shoes were, 24% said the shoes and turf were approximately equal, and 16% rendered no opinion. Because the increase in these injuries is concomitant with both the installation of the artificial playing surfaces in a large number of stadiums throughout the country and the subsequent change in footwear, both of these factors are considered significantly suspect as being a causation.

(1) Playing surfaces: Comparing grass to artificial surfaces, Bowers and Martin,¹ at the University of West Virginia in 1974, determined the parameters of stopping time, total impact duration, peak acceleration and deceleration, and average acceleration and deceleration. As a playing surface, they found that new Astroturf compares with natural grass, but that five-year-old Astroturf is poorer in all of these parameters and approximates the asphalt base in its impact characteristics.

(2) Shoes: The support given by the footgear has deteriorated with the advent of the emphasis on speed and traction.

(3) Shoe Fitting: Nearly all popular brands of football shoes are fit primarily by length. Those athletes requiring wider shoe sizes may be issued a longer shoe to accommodate their wide feet. This results in an exceptionally long shoe which may create undesired distribution of forces in the forefoot with subsequent metatarsophalangeal joint injury.

(4) Individual Characteristics: A prospective study in 1976, during which seven injuries occurred, failed to reveal a relationship between injury and range of motion. A higher percentage of injured toes appear to have flattened metatarsal heads, rather than spherical, possibly from pre-existing years of activity. This is, however, only an impression as the variation in roentgenogram technique did not always provide repro-

ducible readings, and the flattening of non-symptomatic metatarsal heads was not studied.

Mechanisms of Injury

The primary mechanisms of injury were seen. The most common was hyperextension (Fig. 2). The player was lying prone on the ground, with toes on the playing surface and heel in the air. In the subsequent pile-up, another player would fall across the back of his leg, hyperextending the metatarsophalangeal joint.

The second type is the hyperflexion injury, with the ball-carrier being tackled from behind, driving his knee forward. If his foot is plantar flexed, another player striking the ball-carrier from the front forces his body back over his flexed knee and hyperflexed great toe.

The third is a valgus injury occurring on sudden acceleration, such as a back-position player pushing off from his offensive stance. This mechanism is more likely to produce symptoms of insidious onset.

Treatment

Often, at the University of Arkansas, non-operative therapy was utilized as the primary treatment of choice in great-toe injuries; the hallmark of such treatment is joint rest. Depending on the severity of the injury, this may include plaster immobilization, crutch walking, or simply walking on the heels to avoid painful motion of the toe. Ice, compression, and elevation are used early after injury. Later, ultra-sound, contrast baths, or paraffin offer some benefit.

The player is asked to walk at a speed and in a weight-bearing configuration that is within his range of comfort, and under no circumstances should it produce a painful gait. Typically, this therapy will progress from flat-footed walking to a normal gait, and then the player is permitted

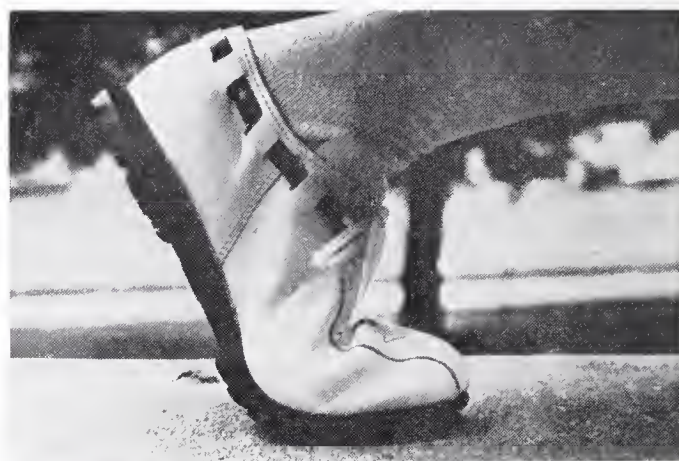


Figure 2.
Example of the current "turf" shoe with the hyperextension force at the metatarsophalangeal joint.

to jog at increased speeds with a normal stride until he can run straight ahead at full speed. The patient is then encouraged to start running from a stance until he can do so without discomfort. Finally, he performs cutting maneuvers. Throughout this period of jogging and running, the patient is fitted with shoes that are modified so as to produce increased stability of the distal forefoot and toe areas. A 0.51 mm spring steel splint (Fig. 3), extending from the forward edge of the heel to the forward edge of the inner sole of the shoe has routinely been utilized. Dr. Garrick, in a recent panel discussion reported in *The Physician in Sports Medicine Journal*,² has utilized an Orthoplast splint between the upper and the sole of the shoe, and reports a decreased incidence of metatarsophalangeal injury in his athletes. In addition, taping the toe to prevent it from assuming the configuration of the original injury, as suggested by the head trainer of the University of Arkansas, has been of considerable benefit in most cases.

Responses from the trainers questioned, 24% said that steroid injections were used acutely. In the researchers' opinion, steroids are of no benefit and can be detrimental if they mask symptoms which would have prevented a too early return to activity.

Despite the non-operative therapy outlined, there have been failures that have led to the necessity of surgery. It is difficult to determine from the initial exam or studies just which injuries will fail to respond to non-operative therapy. For example, some capsular tears responded to three weeks of conservative therapy while others did not improve even after several months. However, later operative repair was beneficial in such cases. One fractured sesamoid resulted in

a permanent impairment, while another caused only two missed practices.

Illustrative Cases

Case Number One: D. F., running back, had an apparent hyperextension injury occurring during practice on September 11, 1974. The patient was limping and in pain by the end of practice. Roentgenograms suggested a fracture of the sesamoid (Fig. 4A), but since the patient was only mildly tender and did not recall a specific injury, it was hoped that this represented an old injury or "red herring." D. F. was comfortable after two missed practices, but a re-injury occurred five weeks later, while wearing a popular brand shoe with a short toe plate added (Fig. 4B). This was a typical hyperextension type injury. Roentgenograms (Fig. 4C) at this time revealed a widening of the defect, again, after missed practices, D. F. returned to play, and completed the season as the number three all-time rushing leader at the University. In 1977 D. F. is a



Figure 3.
The strip spring temper stainless steel insert.



Figure 4A.

The initial hyperextension injury was on September 11, 1974, associated with only minimal tenderness and a slight lump. Note the spurring of the metatarsal head, and equivocal fracture of the sesamoid. At that time, the patient had limited symptoms, and "recovery" after only two missed practices.

running back with the New England Patriots and is asymptomatic.

Case Number Two: R. G., running back, received a sesamoid fracture which widened progressively over a five-month period (Figs. 5A, 5B). Excision of the fragments and capsular/flexor brevis repair alleviated his symptoms to some extent, but R. G. could not resume competitive

football participation effectively. Five years later, he is unable to participate in any running activities.

Case Number Three: D. B., running back, was injured on September 5, 1974, pushing off from his offensive stance. Historically, this represented a valgus component to the injury. (Fig. 6A). The patient's arthrogram (Fig. 6B) demonstrated a medial capsular tear which corresponded well to his area of immediate and continuing ecchymosis and tenderness. He was treated with rest, ambulation within the limits of pain, ice, and elevation initially. Later, paraffin baths and shoe modifications were instituted. D. B. resumed football three weeks later, after missing fifteen practices. Of possible prognostic significance was the fact that one week post-injury, the player was walking with only a mild limp, and two weeks post-injury, he was able to jog without any limp while his range of motion had returned to normal by three weeks. It is of interest that the patient had injured the opposite foot while in high school, as a junior, in the Spring of 1973, while



Figure 4B.

Hyperextension injury, with re-injury to the metatarsophalangeal joint on October 28, 1974; toe fixed with the heel in the air, and a force applied across the posterior aspect of the back of the leg, hyperextending the metatarsophalangeal joint.



Figure 4C.

Roentgenograms of the second injury to the metatarsophalangeal joint complex on October 28, with widening of the suspected fracture line following an obvious hyperextension injury.



Figure 5A.

On December 28, roentgenograms revealed a fracture of the tibial sesamoid.

in rubber-soled shoes, on grass. In the fall of that year, D. B. continued to have difficulty and was injected with a local anesthetic in order to play throughout the fall of 1973. He did not improve significantly until the spring of 1974, after a period of rest subsequent to the football season.

D. B. demonstrates the return to activity of a patient with a torn capsule and abnormal joint, treated only by rest and conservative therapy. In 1976, he participated in varsity football but presently cannot play intramural basketball without pain.

Case Number Four: D. T., a quarterback, was wearing a popular leather soccer shoe, playing on grass, and was injured in a pile-up. His roentgenograms revealed joint narrowing, several months later, and a questionable fractured sesamoid. The athlete was seen originally two and one-half months post-injury, and at five months post-injury was operated upon. The primary findings were chondromalacia of the head of the first metatarsal, and an area of capsular tear

superiolaterally where the synovium was adherent to the articular surface. This was shaved. The area of chondromalacia was smoothed and the capsule repaired. The athlete returned to football and played through the season of his senior year, fall of 1974—three years after his original injury. Although D. T. continued to have some symptoms in his first metatarsophalangeal joint in 1976, they were no worse than his opposite foot which also demonstrated a

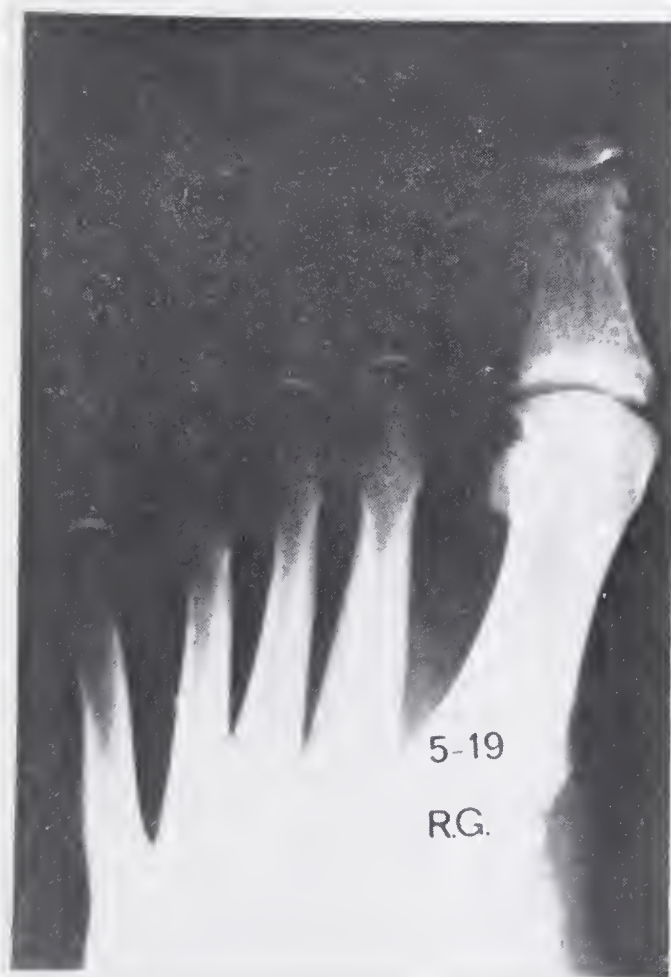


Figure 5B.
The fracture widened progressively over the next five months. Excision of the fragments and a soft tissue repair helped his symptoms, but he was still limited in his activities three years later.



Figure 6A.
The valgus component to the injury to the right foot while pushing off from the offensive stance.



Figure 6B.
Arthrogram showing the medial and dorsal capsular tear.

flattening of the metatarsal heads and some early arthritic changes (Fig. 7B).

Case Number Five: Another example of late repair is M. K., a basketball player, who during a game on hardwood floors, was injured while in a prone position when another player fell across his heel. He was treated non-operatively, as previously outlined, from the time of injury until he was able to return to basketball six weeks later. Three weeks post-injury, the patient could not jog without pain, and at four and one-half months he still lacked five degrees of full extension. M. K. was able to finish the basketball season but was operated upon because of both the persistent point tenderness on the plantar medial surface of the first metatarsophalangeal joint and the pain with activity. At exploration, three small artilaginous loose bodies were found in the joint with synovial irritation. The largest one of these loose bodies only measured 2 mm. Though these may seem insignificant, a compari-

son of the size of the loose bodies to the size of the joint increases their relative importance. The capsule was thickened in an area of spontaneous healing medially. This area was excised, repaired and tightened. In six weeks time, the patient was able to play basketball for two hour durations at a time. In eleven weeks M. K. had regained normal activity, including unlimited basketball, without pain. The only differentiating factor noted was the loss of five degrees of flexion, compared to the opposite foot. Four years later, M. K. is still playing intramural basketball without restrictions.

Case Number Six: B. B., a running back, illustrates late sequelae following attempts to continue playing, despite incomplete relief of symptoms. The original injury occurred in 1968 (Fig. 8A). There was a subsequent appearance of calcification in the soft tissues anterior to the dorsal surface of the first metatarsal (Fig. 8B). The finding at the time of surgery indicated an old incomplete capsular tear. It is likely, from the sequential appearance of the roentgenograms,

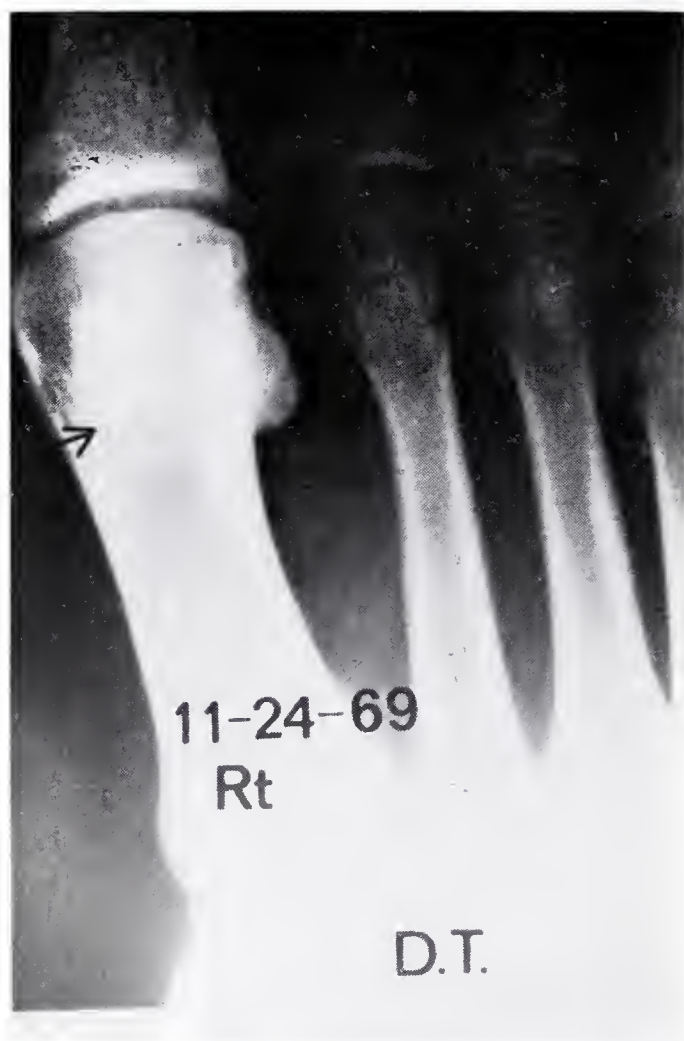


Figure 7A.

This quarterback was injured in a pile-up, and roentgenograms indicated a possible sesamoid fracture. Five months postinjury, operative findings showed chondromalacia of the head of the first metatarsal with a capsular tear. He continues to have some symptoms of the first metatarsophalangeal joint of the foot, but no worse than the opposite side.



Figure 7B.

The opposite foot, which also demonstrates flattening of the metatarsal head, and some early arthritic changes.

that the calcification appeared after the first football game in which the patient participated, which was a bowl game some three months after his original injury. Thus, B. B. continued to aggravate the condition. Eight years later, the patient reported mild pain with activity, but he could participate fully in recreational sports.

Case Number Seven: D. R. was a hyperextension injury and is included to illustrate that significant fractures can occur with this mechanism of injury (Fig. 9A). This patient did not return to football during the year of injury since occurrence was in the early part of November. He was able to play without difficulty the following season, and three years later continues to be asymptomatic (Fig. 9B).

Case Number Eight: R. B. illustrates a similar mechanism as Case Seven, but the injury was incurred by this recreational athlete while playing in tennis shoes on grass (Fig. 10).

Conclusions

Based on clinical experiences of the authors and responses from major college athletic trainers

to a questionnaire, the following conclusions are drawn: (1) Injury to the first metatarsophalangeal joint complex is less significant in numbers than it is in severity, as related to missed practices and games among collegiate players. This particular injury appears to be on the increase in the majority of the institutions which reported to the questionnaire. Responsibility is probably both with the playing surfaces and the shoes being utilized. Other possible causation factors include: the intrinsic characteristics of the individual athlete and improper shoe fit. (2) The mechanism of injury may be hyperextension, hyperflexion, or valgus, depending upon the applied stress. (3) The specific structures involved vary greatly, as described. Routine roentgenograms are indicated in all significant injuries while arthrography can help in establishing the exact diagnosis. (4) The initial treatment of choice includes rest, ice, elevation, and compression. Activity is resumed within the limits of pain. Attempts to "force" a cure with in-



Figure 8A.

This is a running back suffering an apparent hyperflexion injury to the metatarsophalangeal joint with no initial roentgenogram changes noted.



Figure 8B.

Calcification was noted in the soft tissues anterior to the dorsal surface of the first metatarsal. Surgical findings were that of an old capsular tear, and calcification appeared after the last football game, three months after his original injury.

jection of steroids, and particularly with injection of local anesthetic agents, and early return to athletic endeavors, are contraindicated. (5) Shoe modification and taping may allow earlier return to athletics, as long as each activity period does not result in an increase of symptoms that night and the following day. (6) Surgery may be required in the event of joint capsular tears, and in fractures of the sesamoid. Open reduction could be required in the event of fractures involving the joint surface. In addition, those athletes not able to jog without a good painless range of motion three weeks post-injury may require surgical repair. (7) When surgery is required, even late repair appears to be effective, particularly when the primary pathology has been a capsular tear. (8) There is a need to re-evaluate the shoes and playing surfaces in the light of this and other injuries. Proper shoe fitting, and sole reinforcement may reduce the incidence of this injury.

Abstract

In the 1972, 1973, and 1974 football seasons at the University of Arkansas, seventy-four players



Figure 9A.
Hyperextension injury with a fracture of the proximal phalanx into the interphalangeal joint.



Figure 9B.
The fracture healed satisfactorily, and the patient was unable to play until the following season.



Figure 10.
Hyperextension injury while playing in tennis shoes on grass.

sustained sprains of the ankle, producing a total of 152 missed practices and six missed games. Although only 18 injuries of the first metatarsophalangeal joint complex were seen, these later resulted in 92 missed practices and seven missed games. This injury has been a significant problem for both the University and for most other major institutions, judging from a 70% response to 94 questionnaires sent to trainers of 94 large colleges and universities throughout the United States. It is the researchers opinion that the artificial turf surface, particularly as it ages, the shoes, and shoe fittings, are all possible contributors to the incidence of the problem.

Non-operative treatment, whose hallmark is rest, is the treatment of first choice. Taping and

splinting with an 0.51 mm spring steel splint with reinforcement, both pre- and post-injury, are beneficial. Injections of steroids or any other attempt to return the still painful athlete to activity are contraindicated. Late surgery, particularly in the event of capsular ruptures, as well as early repair, can be of benefit. The need to re-evaluate the shoes and playing surfaces in the light of this and other injuries is emphasized.

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Immunizations

Donnie Smith*

The use of immunization agents to increase man's specific resistance has played a prominent role in our effort to control communicable diseases. The routine use of diphtheria toxoid, tetanus toxoid and pertussis vaccine (DTP) during infancy has dramatically reduced the incidence of these diseases. The intensive administration of first Salk polio vaccine and then oral polio vaccine had an even more dramatic impact on the incidence of poliomyelitis. Equally dramatic results have followed the introduction of measles and rubella vaccine.

The effectiveness of vaccines to induce specific resistance in a very high percentage of recipients has been demonstrated and continues to be monitored. However, any vaccine is useless until it is administered to a susceptible individual. The greater the number of recipients of a vaccine, the more effective the effort to control specific diseases.

Today, we have evidence of a disturbing trend of complacency toward immunization which is reflected in a decline of immunization levels against polio, diphtheria, tetanus and pertussis. This complacency is, in part, due to the decreased incidence of these diseases. Thus our immediate problem is to overcome this complacency. In order to ensure continued control of these diseases, public awareness, thus parent motivation to have children adequately immunized, must be increased.

Drs. Saul Krugman and Samuel Katz, from New York and Duke Universities, respectively, report the following: 20% of all American children under 13 are not adequately protected by DPT vaccines; 30% of all children age 1-4 are not protected by polio vaccine; and 35% of all American children have never been immunized against measles and rubella.¹

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Acts 244 of 1967 and 633 of 1973 require that children must be completely immunized or in the process of immunization before entering any public school, private school, or child care facility in the State of Arkansas. In order to enforce these acts, the Arkansas Department of Education has made the immunization requirements a part of school accreditation, and the Arkansas Department of Social Services has made the immunization requirement a part of the licensing procedure for child care facilities. Specific steps have been taken to ensure immunization of all children. By January 1, 1978, school systems will have reviewed the immunization records of every child enrolled. Task forces have been organized in each county, and in conjunction with local health units and school systems, will endeavor to bring susceptible students up to date by May of 1978. In the fall of 1978, students will be denied entry into school if not completely immunized. This effort by Arkansas is a part of a national immunization effort begun by the Department of Health, Education and Welfare which has as its goal an immunization level of 90% of the total population.

Following is the immunization schedule recommended by the Arkansas Department of Health. Although the fourth and fifth dose of DTP and OPV are not required for children to remain in school, they are recommended to ensure complete protection against these diseases:

Recommended Immunization Schedule

2 Months	DTP and Oral Polio
4 Months	DTP and Oral Polio
6 Months	DTP and Oral Polio
12-15 Months	Measles - Rubella
18 Months	DTP and Oral Polio Booster
4-6 Years	DTP and Oral Polio Booster
14-16 Years	Tetanus-diphtheria Booster (Every 10 years)

Additional recommendations have been made concerning measles and rubella immunizations. They are:

1. No girl over the age of 12 shall receive a rubella immunization unless a private physician elects to administer the vaccine.
2. Children defined as being susceptible to rubeola (7 day measles) are:
 - a. Any child immunized before age 1.
 - b. Any child who received live attenuated vaccine along with gg (almost all children immunized before January 1, 1967).
 - c. Any child who received killed virus vaccine.
 - d. Any child who has never been immunized or had a documented history of the disease.

If the immunization pattern begins after the recommended age, vaccine should continuously be administered until the child has received one measles, one rubella, three polio and booster,

and three DTP and booster vaccines.

The task of ensuring proper immunization status of children is a large one. However, to make possible the protection of future generations this must be considered a priority by health care professionals. Health education efforts must be directed at increasing the immunization level and maintaining the level at a high plane.

It will take a continuing team effort on the part of private physicians, public clinics, school officials and others in order to maintain a level of immunization high enough to prevent the transmission of the diseases for which immunizations are available. These vaccines are 95% effective when properly administered. Therefore, we should not have to accept a single case of an immunizable disease.

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EDITORIAL

Atherosclerosis and the Heart

Alfred Kahn, Jr., M.D.

The question which is so often presented in the lay press is — is heart disease a degenerative disease — and if so, why can't it be conquered? Arteriosclerotic heart disease is so endemic that one really wonders if it is a disease. Arteriosclerotic lesions can be postponed through attention to diet and treatment of hypertension, of diabetes mellitus, of thyroid disorders, and activity habits.

The detection of persons with arteriosclerotic

heart disease has been improved by two significant advances, stress testing and coronary arteriography. Some of this work has been nicely presented in a paper by Goldschlager, Selzer, and Cohn, entitled "Treadmill Stress Tests as Indicators of Presence and Severity of Coronary Artery Disease" (*Annals Int. Med.*, Vol. 85, p. 277, Sept., 1976). They reported on two important features of stress testing: (1) the type of S-T Segment change, (2) the appearance and duration of

the change. In all, they studied 330 patients and 80 healthy young controls. Their technique consisted in graduated increases in physical exertion on the treadmill; the amount of activity was increased every three minutes until 85% of the predicted maximum cardiac rate was attained. Coronary arteriography was performed using the Stones Technique of the Judkins Technique; the arteriography was considered positive if the diameter of the vessel was decreased 50% or more.

Goldschlager, et al, found that positive stress tests could be divided into three main groups: a downward sloping S-T Segment, a depressed horizontal S-T Segment, and a depressed S-T Segment which is upsloping.

The downsloping S-T Segment signified ischemia with the greatest accuracy — 99%. They had only one false positive. This type of response is said to be associated with the more severe type of disease, as assessed by the number of vessels involved in the atherosclerotic process: 9% of this group had single vessel disease, 34% had two vessel disease, and 56% had three vessel disease. Horizontal S-T Segments did not denote as severe disease as downsloping S-T Segments. Furthermore, there were nine false positives as compared to one false positive out of a larger group where the S-T Segment was descending; this response did not help determine whether the arteriosclerotic process affected more than one vessel. Upsloping S-T Segments were associated with normal or minimal angiographic changes; false positives made up 18% of this group. The authors call this response equivocal, but point out that by using this response as an abnormal one, the sensitivity of the test is increased from 64% to 76%.

The onset and duration of the ischemic changes are stressed as important guideposts by Goldschlager and his co-workers. They state that patients with one vessel disease may not exercise enough in the first three minute period to induce changes. Patients with two or three vessel disease ordinarily develop changes in the first three minute period — but this is not an invariable rule and patients with extensive heart disease may not show electrocardiographic changes until late in the test. They also debunk the idea that a quick return of the S-T Segment changes to a normal configuration means less disease; actually this occurred in 58% of their double

and triple vessel disease. If the S-T Segment changes are present for eight minutes or more, there is a very high expectation that the patient has two vessel or three vessel disease.

The authors also discussed some clues used for the detection of specific types of coronary artery disease. It is reported that left main descending coronary artery disease tends to appear during exercise and to last for eight minutes or more. Left anterior descending coronary artery disease was not characterized by a specific stress pattern nor was disease of the left circumflex artery.

By the time a patient has coronary chest pain and comes to his physician for treatment, palliation is possible but cure is not. Better understanding of what produces atherosclerosis may lead to its prevention since a current cure seems unlikely. Harker, Ross, Slichter, and Scott presented some interesting observations on "Homocystine-induced arteriosclerosis..." (J. Clin. Investig., Vol. 58, p. 731, Sept., 1976). This study was based on a group of premises concerning the arterial intima including injury leads to loss of living cells, platelets stick to exposed subendothelial cells, platelets release certain chemicals, plasma substances penetrate the intima, smooth muscle invades the intima, connective tissue forms in the intima, and lipid accumulates. In non-human primates, if the endothelium reforms as a continuous layer, the lesion disappears.

The authors used homocystine and brought about a chemical injury to the endothelium. Their interest was to determine if the atherosclerotic process could be interrupted — despite the fact that the initial step had been instigated — namely, the interruption of the endothelial continuity. If no treatment was instituted after endothelial injury with homocystine, atherosclerosis developed.

Harker, et al, found that formation of the plaque "used" a large number of platelets. Their concern was to determine if the platelets were pharmacologically inhibited from functioning — would the plaque occur? They used dipyridamole to produce platelet dysfunction.

Their results indicated that even though the plaque formation is definitely interrupted by platelet dysfunction the smooth muscle proliferation does not occur.

Perhaps this work of Harker, et al, will give some clues to the prevention of atherosclerosis.

MEDICINE IN THE



THE MONTH IN WASHINGTON

President Carter has signed into law stiff penalties for providers who are found guilty of fraud in the Medicare and Medicaid programs.

The new law levies felony penalties to a maximum \$25,000 fine and five years in prison replacing the misdemeanor penalties of up to \$10,000 fine and one year in prison.

The bill passed overwhelmingly by Congress and sent to the White House is aimed at providers and retains misdemeanor penalties for recipients convicted of defrauding the programs. It was the first major health bill of the Administration to become law.

Providers found guilty of fraud and abuse will be treated as felons and punished by up to five years in jail and/or a fine up to \$25,000. Previous law considered such violations as misdemeanors rather than felonies.

Illegal "kickbacks" among providers are defined and institutions are compelled to submit ownership data to the government. One of the main targets of the bill was so-called "Medicaid mills" and kickbacks uncovered in several large cities.

The disclosure requirements do not apply to individual physicians or to groups of physicians.

States must form anti-fraud units separate from their health departments in order to qualify for Medicaid funding.

Other provisions:

★ States can supersede PSRO activities covering Medicaid if they demonstrate to the federal government that PSROs are making decisions that "have a detrimental effect" on state Medicaid spending.

★ The Health, Education and Welfare Department was given the authority to select regional or national intermediaries if it concludes that existing intermediaries within a state are doing a poor job.

★ Most Medicaid reimbursement would have to be made within 30 days by the states.

An amendment giving HEW power to initiate suits was dropped from the measure by House-Senate conferees, but Rep. Paul Rogers (D-Fla.) said Attorney General Griffin Bell had informed him that the FBI was training 350 agents to audit Medicare and Medicaid records. Rogers is Chairman of the House Commerce Subcommittee on Health.

Sen. Herman Talmadge (D-Ga.), Chairman of the Senate Finance Subcommittee on Health, said the bill is a "clear, loud warning to thieves and crooks that will be heard in unmistakable tones."

Meanwhile, HEW Secretary Joseph Califano, told a television panel show that taxpayers are losing at least \$1 billion a year through payments to ineligible people. Califano denied reports HEW is abandoning "project integrity," declaring that 2,500 cases of provider fraud are being investigated on a state-by-state basis for possible prosecution.

* * * *

Final Congressional hearings on the Administration's stumbling Hospital Cost Containment program have been conducted by the Senate Finance Committee and all indications are that no legislation will be enacted this year.

Subcommittee Chairman Herman Talmadge (D-Ga.) has said his information from the House side was that representatives are not "overly optimistic" the House will move before the end of the current session.

In an opening statement, Talmadge said he feared the Administration's proposed nine percent "cap" on all hospital revenues could harm efficient hospitals. "Irreparable harm" could befall the hospital system, the senator said. "While there are many obese hospitals, there are many lean ones," he said. "I don't want to put all hospitals on a 1,200-calories-a-day diet."

Talmadge said his staff has drawn up a set of recommendations for an approach melding some of the Administration's ideas with Talmadge's own long-standing proposal for a thorough overhaul of Medicare and Medicaid

hinging on prospective reimbursement for hospitals to encourage efficiency.

The importance attached to the issue by the Administration was evident from a letter sent by President Carter to Talmadge and House health subcommittee chairmen Reps. Dan Rostenkowski (D.-Ill.) and Paul Rogers (D.-Fla.) declaring that "one of my most important priorities is to secure strong legislation to restrain the skyrocketing increase in health care costs." Carter said "I wish to reaffirm my strong personal commitment to the Administration's Hospital Cost containment legislation."

The first witness before Talmadge was HEW Secretary Joseph Califano who charged that if Congress delays passage another four months "there will be an additional inflation of \$2.8 billion in hospital costs." "I must underscore again the enormous adverse impact on our health care system caused by continued delays..."

Continuing his assault on hospitals, Califano said many institutions "are wallowing in ice cream, candy and cake."

"Our citizens simply cannot afford this mindless, inexorable spiraling of health expenditures that impoverish other needed health care programs and send the costs of medical care out of sight," said the HEW Secretary.

The American Medical Association told the subcommittee that a "cap" is "manifestly unfair" and would discourage hospitals from improving services. Robert B. Hunter, M.D., Chairman of the AMA Board of Trustees, said the more admissions a hospital has "the more likely it is to be penalized."

"Artificial limitations, irrespective of how generous or how restrictive, are unrealistic," said Dr. Hunter.

The bill includes medical equipment in physicians' offices under capital expenditure limitations when the cost is above \$150,000. This provision "is both unjustified and unsupportable," said the AMA witness. "Such limitation would prove onerous, especially for physicians first opening practices as well as for those desiring to modernize offices in order to assure continued quality patient care."

The subcommittee was urged to keep in mind "that full access to quality care for those individuals needing health care services requires

appropriate resources." Dr. Hunter said "arbitrarily limiting resources — both physical and financial — affects not only access, but also quality." He suggested any cost containment plan be started as a local experiment to determine its workability.

John Alexander McMahon, President of the American Hospital Association, told the subcommittee that the Administration bill "would seriously jeopardize the present and future ability of hospitals to provide quality care to the American people."

Applying a uniform cap on all hospitals "would exert the heaviest pressures where they are least appropriate — on the most efficient hospitals," said McMahon. These facilities would be forced to curtail essential services, according to McMahon.

Hospitals purchase and use many services and goods that rise faster in cost than the rest of the market, McMahon testified. Of the 15 percent rise in hospital costs last year, 10 percent was purely the result of inflation and five percent "resulted from increased intensity and improvement in patient care."

Sen. Richard Schweiker (R.-Pa.) urged consideration of his measure that promotes state programs to control costs. "With a little encouragement and assistance from the federal government, the states can achieve greater actual savings in a far more equitable manner than a uniform system administered from Washington, D. C.," he said.

* * * *

The Congressional investigation of whether there is too much surgery has boiled down to a question of whose study to believe and whose interpretation is correct. Rep. John Moss (D.-Calif.), Chairman of the House Commerce Subcommittee on Oversight, insists there is far too much surgery despite protests from many physicians and evidence from studies that his contentions are overblown.

Moss attacked the conclusions of a study headed by Ralph Emerson, M.D., President of the New York State Medical Society, that less than one percent of major operations are being performed with less than usually accepted indications.

Moss and his subcommittee have been relying on another study that 17 percent of surgery is not required, extrapolating that there are 2.4

million unnecessary operations yearly and 11,900 deaths from these procedures.

The Emerson study, underway since the late 1960's, used preset criteria for monitoring quality of surgical care, criteria prepared by four state medical schools, the state Department of Health and the state medical society. In addition to finding less than one percent of major operations questionable, the study found two or three percent of minor surgery in this category.

Karl Pfuetze, M.D., a cardiologist from Kansas City and an expert on surgical statistics, testified that the so-called McCarthy study was employed erroneously by the subcommittee. The finding of a 17 percent difference of opinion on whether surgery should be performed stems only from the fact that there will be a range of from 10 to 20 percent of differing opinion for much elective surgery, said Dr. Pfuetze.

He said that if every surgeon sought the opinion of ten other surgeons on each case, there would often be one or two or three dissenters. But the majority judgment in such cases would be accepted. However, seeking these consultations separately for each case would result in a difference of opinion ranging from 10 percent to 30 percent.

Said the witness:

"Previous alarming calculations of so-called unnecessary surgery have been based on estimates, misunderstandings of the mathematical implications of experimental design, a lack of understanding about what really produces a difference of opinion between physicians. The result of these factors has produced a 700-1700 percent overestimate of so-called unnecessary surgery and a 3700 percent overestimate of unnecessary deaths."

"I do not believe that it serves any useful purpose to continue to assume that the previous figures on unnecessary surgery are either accurate or useful," said Dr. Pfuetze.

C. Rollins Hanlon, M.D., Director of the American College of Surgeons, said "The College recognizes the need to consider the complexity and cost of surgical procedures as well as the need for broad knowledge of surgical biology, diagnostic skill and operative skill to make the patient safe for the operation, and the operation safe for the patient."

Dr. Hanlon also told the Subcommittee:

"These needs dictate our continued insistence on long and exacting education for surgeons, rather than casual, on-the-job training, as inappropriate to modern surgery as the competence of the occasional weekend pilot to take over the controls of a 747. Scrupulously careful delineation of privileges based on education, peer appraisal of skills, and certification of specific competence will remain the most reliable basis for appropriately recommended and safely performed operations by genuine surgeons, rather than casual operators."

* * * *

The AMA has informed Sen. Edward Kennedy (D-Mass.) that it could not testify at hearings on competition in the health care field because the issues coincide with those posed at a trial now in progress before the Federal Trade Commission.

The hearing was called off by Kennedy. Among other witnesses slated to testify that day was Michael Pertschuk, FTC Commissioner. Kennedy planned to go ahead later with such hearings before an unusual joint session of two subcommittees he heads—Senate Human Resources Subcommittee on Health and the Senate Judiciary Subcommittee on Antitrust and Monopoly.

Kennedy had no comment on the AMA's refusal to testify.

In a letter to the Senator, the AMA said questions by Kennedy in a letter to the AMA and the issues to be addressed "are essentially the same as the issues now on trial before an Administrative Law Judge of the Federal Trade Commission.

"For this reason," wrote AMA Executive Vice President James H. Sammons, M.D., "the Association has been advised by legal counsel not to appear to present testimony..." When an issue is involved in litigation, testimony on the same subject before Congress could jeopardize the legal position of the witness.

Dr. Sammons said that the AMA's stand on the primary issue of regulation and competition can be provided for the record. The Association has long advocated "a pluralistic system of health care with free competition among all practitioners whether practicing alone, in groups or as salaried or contracting physicians in HMOs"

(Health Maintenance Organizations), said the AMA.

Kennedy also was informed that the AMA "strongly advocates" consumer information including standard fees charged by physicians. "The Association remains opposed to self-regulatory statements or claims such as testimonials and non-verifiable statements or claims.

The chief issue before the FTC is the AMA's code against unethical advertising by physicians.

Dr. Sammons said government regulation of the supply of physicians and their distribution by specialty "would have an unpredictable and detrimental impact upon the future quality of care."

The AMA letter continued:

"The issue of quality of care and cost of care are not separate and unrelated and are not independent from the issue of availability of services. These three elements of medical care are somewhat like a tripod in that alteration of one will cause an imbalance or instability of the other two. Too frequently, congressional approaches to cost problems result in reduction of available technology, benefits and access to quality care."

A tug-of-war situation has developed within the federal government with some agencies promulgating ever more stringent regulation of the medical profession while other agencies demand removal of any professional self-regulation and relaxation of government regulation, Dr. Sammons declared.

* * * *

A Congressional Budget Office (CBO) study reports that non-whites are less healthy than white persons. Non-whites experience nearly 50 percent more bed disability days, 70 percent higher infant mortality and a life expectancy six years shorter than that of whites the study said.

White persons make about 10 percent more visits to doctors than non-whites.

Although the proportions of whites and non-whites hospitalized each year varies little, non-whites tend to remain in the hospital longer because they are sicker, particularly poor non-whites, according to the CBO.

The study, "health differentials between white and non-white Americans" is part of a series of CBO studies on racial inequalities. It concludes that the health of non-white persons has im-

proved during the last 20 years but has not caught up.

The health of non-whites is not as good as that of whites, yet non-whites get less and possibly less-effective health care than whites do, the study said.

CBO's study, based on published and unpublished data about various health care indicators and their relationship to race, found that a non-white is 60 percent more likely to die of flu or pneumonia and five times as likely to die of tuberculosis.

The non-white male or female is nearly twice as likely to die of cirrhosis of the liver and more than seven times as likely to be a victim of homicide, both of which indicate social or psychological problems, the study said.

Non-whites included blacks, American Indians and Orientals.

* * * *

The House has gone along with the Senate and approved an 18-month postponement of the proposed Food and Drug Administration ban on use of saccharin. The vote was 375 to 23. Differences in labeling requirements will have to be resolved before the bill is sent to the White House.

The Senate wants saccharin products to carry a label cautioning that the sweetener causes cancer in animals and may increase people's risk. The House bill only requires a notice at the store where the product is sold.

Rep. Andrew Maguire (D.-N. J.) during floor debate suggested sarcastically there should be an "assurance label" that reads:

"Saccharin does not cause cancer in the opinion of your Congressman despite scientific evidence that it does."

On the other side, Rep. Samuel Devine (R.-Ohio) told the House "not long ago we had a scare about cranberries. Then it was cyclamates and just this weekend someone said my vegetables might cause cancer. My God, are we going to ban vegetables because they might cause cancer?"

* * * *

CANCER RESEARCH AWARD GIVEN

The Ladies Auxiliary to the Veterans of Foreign Wars recently presented a grant for cancer research to Dr. Bill L. Trantum, Assistant Professor of Medicine at the University of Arkansas Medical Center.



PERSONAL AND NEWS ITEMS

DR. LEVY RECEIVES AWARD

Dr. Jerome S. Levy of Little Rock was recently presented the Robert S. Abernathy Award for outstanding achievement by the Arkansas Chapter of the American College of Physicians. The award acknowledges Dr. Levy's contributions in teaching 3,000 medical students since helping to establish the Gastroenterology Division of the University of Arkansas College of Medicine in 1929.

DR. BETTS PRESENTS PROGRAM

Dr. Charles S. Betts of North Little Rock presented a program on "Brief Techniques for Use in the Management of the Anxious Patient" to the medical staff at St. Joseph's Mercy Medical Center in Hot Springs.

WEST MEMPHIS GAINS PHYSICIAN

Dr. Sidney Arnold, a Gynecologist, recently began practicing in West Memphis. His office is in the Crittenden Memorial Hospital Professional Office Building.

DR. SMITH LOCATES

Dr. David E. Smith has entered the practice of Cardiology at Doctor's Park Building in Little Rock. Dr. Smith was assistant professor of Internal Medicine and staff cardiologist at the University of Arkansas College of Medicine prior to entering private practice.

DR. MARTINDALE GUEST SPEAKER

Dr. J. L. Martindale of Benton recently spoke to sixth grade students at West Side Elementary School. Dr. Martindale discussed general health subjects.

DRS. REDMAN AND ELLIOTT SPEAK

Dr. John Redman of Little Rock and Dr. Wayne Elliott of El Dorado were guest speakers at an Infection Control Seminar which was recently held in El Dorado for hospital and nursing home personnel.

DR. HAWKINS OPENS NEW CLINIC

Dr. Michael L. Hawkins recently moved into his new Surgical Clinic at 614 Medical Plaza in Mountain Home. Dr. Hawkins has practiced in Mountain Home since January 1976.

DR. LEE BOSS OF YEAR

Dr. W. R. Lee of Hot Springs was named "Boss of the Year" by the Garland County Medical Assistants Society.

DR. PAPPAS ELECTED

Dr. James J. Pappas of Little Rock has been elected to the board of directors of the Arkansas Savings and Loan Association.

DOCTORS LOCATE

Dr. Bui Van Doan and Dr. Vu Van Trong recently received their intern completion certificates from the University of Arkansas College of Medicine. Dr. Doan has established his practice in Gillette and Dr. Trong has entered practice in Dierks.

DR. BIONDO HONORED

Dr. Raymond V. Biondo of North Little Rock was recently honored by the Northern Colorado University at Greeley. Dr. Biondo was one of ten alumni who have been honored for their achievements.

DR. MCKENZIE CONDUCTS WORKSHOP

Dr. Charles N. McKenzie of Little Rock recently conducted a workshop on scoliosis sponsored by the Walnut Ridge Parent-Teachers Association. Dr. McKenzie is Director of a Scoliosis Clinic which he organized in 1969.

PHYSICIANS NAMED FELLOWS

Drs. Joseph E. Hughes and Ted S. Lancaster of Walnut Ridge, and Dr. Robert L. Prosser, III, of McGehee were recently named Fellows of the American Academy of Family Physicians.

DR. ROGERS HONORED

Dr. Paul Rogers of Fort Smith was recently named "Doctor of the Year" by the Sebastian County Medical Assistant's Society.

DR. PAPPAS PRESENTS SCIENTIFIC PAPER

Dr. James J. Pappas of Little Rock presented a paper at the November meeting of the Southern Medical Association in Dallas. Dr. Pappas' paper was entitled "Total Hearing Rehabilitation: Within-Clinic Hearing Aid Dispensing."

PHYSICIANS PARTICIPATE

Dr. Ben Saltzman of Little Rock, and Drs.

John R. Broadwater and William F. Turner of Fort Smith were speakers at the Cancer Society's annual meeting held recently in Little Rock.

DR. LINDSEY DEMONSTRATES

Dr. James Lindsey of the Pine Bluff Family Practice Center recently lectured on anatomy to local sixth grade students, using a beef heart from a packing plant in demonstrating the structure of the heart for the students.

PHYSICIANS LOCATE

Dr. P. Vasudevan, a Urologist, and Dr. Kanada Vasudevan, an Anesthesiologist, entered practice in Helena in January. Dr. Maurice J. Elovitz will locate in Helena in March for the practice of General Surgery.

DR. WOOD ELECTED

Dr. Jack Wood of Fayetteville has been elected president of the Arkansas Division of the American Cancer Society for 1978.

DR. HARRISON TO HOT SPRINGS

Dr. Margaret Harrison is now associated with the Children's Clinic in Hot Springs. Before entering private practice, she was an instructor in Pediatrics at the University of Arkansas Medical Center in Little Rock.

DR. CRITTENDEN RELOCATES

Dr. David Crittenden, a Nephrologist, has joined the staff of Holt-Krock Clinic in Fort Smith. Dr. Crittenden formerly practiced in Little Rock.



THINGS TO COME



PSYCHOPHARMACOLOGY SYMPOSIUM

The Fourth International Symposium on Psychopharmacology will be held by the Department of Psychiatry, University of Louisville School of Medicine, on February 24-25, 1978. The focus will be on Depression. Subjects covered will be Pharmacology, Neuroendocrine Aspects, Diagnosis, Natural Course, Pharmacologic Treatment, Side Effects of Antidepressant Medication, Electroshock Treatment of Depression, Psychoanalytic Treatment, Diagnosis and Treatment of Depression in Children. Two "Quiz the Expert" sessions will be held and there will be a presentation on the "Current Status of Psychopharmacology in Mexico." The Symposium has been approved for eleven prescribed credit hours. For further information contact: Herman C. B. Denber, M.D., Ph.D., Professor Psychiatry, University of Louisville Health Sciences Center, Post Office Box 35260, Louisville, Kentucky 40232.

"THE INFERTILE FEMALE" SYMPOSIUM

The University of Tennessee Center for the

Health Sciences College of Medicine will present a Symposium on "The Infertile Female" at the Holiday Inn Rivermont Hotel, Memphis, Tennessee, March 13-15, 1978. The Symposium is designed as a postgraduate course for practicing physicians and is approved for twenty elective hours by the American Academy of Family Physicians and twenty-five cognates by the American College of Obstetricians and Gynecologists.

For further information contact: Division of Continuing Education, University of Tennessee Center for the Health Sciences, 800 Madison Avenue, Memphis, Tennessee 38163. Telephone (901) 528-5547. The Symposium Director is Dr. James R. Givens.

CARDIOPATHY OF AGING IV

Cardiopathy of Aging IV (heart disease in the elderly patient) will be presented in Little Rock, Arkansas, on May 16-17, 1978, by the Veterans Administration, the University of Arkansas College of Medicine, the Council on Clinical Cardiology of the American Heart Association, and the Tri-State Scientific Sessions of the American Heart Association. Information regarding this symposium may be obtained from —

J. E. Doherty, M.D., Program Director
Cardiopathy of Aging IV
300 East Roosevelt Road
Little Rock, Arkansas 72206



O B I T U A R Y

CALDEEN D. GUNTER, M.D.

Dr. Caldeen D. Gunter of Siloam Springs died November 11, 1977, at the age of sixty-five. Dr. Gunter was born in Siloam Springs. He received a bachelor's degree from Northeastern State College in Tahlequah, Oklahoma; a Master of Science degree from the University of Arkansas, and his medical degree from the University of Oklahoma School of Medicine. Dr. Gunter practiced in Siloam Springs from 1949 until his retirement in 1964.

Dr. Gunter was a past president of the Benton County Medical Society and a member of the American Academy of Family Physicians.

A veteran of World War II, he was an active civic leader in Siloam Springs, having served as director of numerous community boards. He was a Mason and a member of the Sigma Chi Fraternity. Dr. Gunter received the Jaycee's "Pioneer Citizen of the Year" Award in 1975.

Dr. Gunter is survived by his wife, Evelyn Gunter, and a daughter, Mrs. Karen Schmidt of Strath, New Hampshire.



ANSWER—Electrocardiogram of the Month

INTERPRETATION: Sinus rhythm at a rate of 75 per minute. Left axis deviation with non-specific ST-T wave changes. Abnormal septal depolarization as evidenced by QS complex in V_1 and small Q wave in V_2 .

DISCUSSION: Marked LAD in combination with small Q waves in I and AVL and persistent S wave in V_6 is compatible with left anterior hemiblock.

The septal Q waves suggest a possible old anterior septal MI. However, because of abnormal displacement of initial forces in an inferior direction, left anterior hemiblock can also produce this pattern. The differential diagnosis can be made by:

1. Vectorcardiography
2. Recording the precordial leads 2 interspaces lower. Pathologic Q waves will persist while Q waves due to anterior hemiblock will resolve.

Reference: American Heart Journal, Vol. 92, 363-367, 1976.



N E W M E M B E R S

DR. JAMES E. KEEVER

Dr. James Earl Keever has been accepted into the membership of the Miller County Medical Society. Dr. Keever was born in Pratt, Kansas, and received his bachelor of arts degree from the University of Kansas in 1965. He was graduated from the University of Kansas School of Medicine in 1969 and continued there for his internship. Dr. Keever served in the United States Public Health Service from 1970 to 1973. He received his Orthopaedic residency training at Bexar County Hospital in San Antonio, Texas.

Dr. Keever specializes in Orthopaedics. His office is located at 300 East Sixth Street in Texarkana.

JAMES B. EAVES

Mr. James B. Eaves has been accepted into the membership of the Pulaski County Medical Society as a medical-student member. He is a native of Little Rock. Mr. Eaves received his pre-medical education at the United States Air Force Academy where he received his B.S. degree, and he is a member of the junior class at the University of Arkansas College of Medicine.



Woman's
Auxiliary

STATE AUXILIARY PRESIDENT SPEAKS

Mrs. Kemal Kutait of Fort Smith, President of the Arkansas Medical Society Auxiliary, spoke on "Privileges and Responsibilities of Being a

Doctor's Wife" at a recent meeting of the Boone County Medical Auxiliary.

BOONE COUNTY WINS AWARDS

The Boone County Medical Society Auxiliary won two first place awards for its exhibit at the Southern Medical Association meeting in Dallas.

The exhibit, entitled "The Amazing William A. Hudson, M.D.," was presented by Mrs. Henry V. Kirby of Harrison. The exhibit won first place in the "best county exhibit with membership under seventy-five" category; and first place in the "most outstanding exhibit either from a county or state" category.



PROCEEDINGS OF SOCIETIES

Minutes

Council of the Arkansas Medical Society

The Council of the Arkansas Medical Society met at 10:00 A.M. on Sunday, November 27, 1977, in the Camelot Inn, Little Rock. Present were: Drs. Burge, Kolb, Wynne, Shuffield, Duzan, Lilly, Kirkley, Gray, J. Bell, P. Bell, Stone, Irwin, Moore, Harris, Andrews, McCrary, Clark, Jouett, Henry, Williams, Kutait, Wilkins, Ellis, Watson, Verser, Townsend, Brown, Koenig, Chudy, Crow, George Mitchell, J. P. Price, James Weber, Jim Lytle, Edgar Easley, Rex Ramsay, Thomas Bruce, James Dennis, Charles Ledbetter, W. P. Phillips, William Jones, James Guthrie, James Gardner, Gaither Johnston, George Warren, David Fried, Frank Padberg, Ruth Steinkamp, Sterling Roaf, Juan Roman, Mr. Paul Harris, Mr. Eugene Warren, Mr. Mike Mitchell, Mr. Bob Cearley, Mr. Gene Brooks, C. C. Long and Leah Richmond.

Chairman Burge introduced the new councilor from the third district — Herd Stone from Holly Grove — and guests present.

The Council transacted business as follows:

1. Mr. Warren presented a proposal for a general referendum petition to get a proposed amendment to the Constitution on the general election ballot in 1978 and a campaign to get voter approval of a Constitutional Amendment. Upon motion of Williams and

Kutait, the Council voted to adopt the proposal presented by Mr. Warren with a steering committee appointed by the Council.

2. The Council received for information a report from T. E. Townsend on his testimony at the public forum on national health insurance sponsored by the Department of Health, Education and Welfare in October in Little Rock.
3. Dr. Rex Ramsay, director of the State Health Department, discussed the National Immunization Initiative.
4. The Council heard a complaint from the Union County Medical Society regarding the Department of Maternal and Child Health of the State Health Department and discussion of the situation by representatives of the Health Department. Upon motion of Williams, the Council voted to refer the matter to the appropriate committee of the Society for study.
5. Dr. Shuffield discussed proposed regulations for physician's trained assistants and urged physicians to attend the hearing on the regulations to be held on December 7th in Little Rock.
6. Upon the motion of Kirkley, the Council voted to send five officers of the Society to the National Leadership Conference of the American Medical Association in Chicago in January.
7. Dr. Watson presented a proposed resolution commending Dr. George Jackson. Upon the motion of Shuffield, the Council approved the resolution and directed that copies be forwarded to members of the State Hospital Board; the Governor; David Ray, Director of the State Department of Social and Rehabilitative Services; and to Dr. Jackson.

8. William Jones of Pulaski County requested information on the status of the committee appointed in the spring to study the advisability and feasibility of having based in Little Rock a subsidiary staff from the headquarters office in Fort Smith. Chairman of the Study Committee, Dr. Kirkley, reported that his committee had met and reported to the Council at the June meeting. The Council requested that the committee give further study to the matter. A meeting of the committee was scheduled for the morning of November 27th; only Dr. Kirkley and Dr. Lilly were present for the meeting. Dr. Kirkley advised that another meeting of the committee would be scheduled in the near future.

The meeting adjourned at 11:50 A.M.

APPROVED: John P. Burge, M.D.
Chairman of the Council

* * * *

DR. SHUFFIELD'S STATEMENT CONCERNING PROPOSED REGULATIONS FOR PHYSICIAN'S TRAINED ASSISTANTS

The creation and implementation of the Physician's Trained Assistant Program by Act 415 of 1977 has two facets, both of which are of compelling concern to the people of Arkansas and are of equal importance. They are:

- A. The creation of the Physician's Trained Assistant category to bring quasi-medical service to a segment of the State by persons who are admittedly not well educated and trained as an M.D.
- B. The protection of the members of this segment who the P.T.A.'s will serve from injury as the result of insufficient education and training of the P.T.A.

The Legislature assumed the burden and responsibility of "A", but it recognized that it did not have the expertise in assuming the burden and the responsibility of "B". Consequently, it directed the medical profession, through the State Medical Board, to assume that "B" was carefully complied with. There seems to be a misunderstanding of the Board's responsibility in the P.T.A. program by members, at least some of them, of the State Medical Board.

The desirability of "A" is being confused with the responsibility of "B". The Board should not abrogate its responsibility to use its best judgment

in complying with "B" by the arguments which confused "B" and "A". Had the Legislature been of the opinion that "A" and "B" were one and the same, it could and would have created the P.T.A. category without placing upon the Medical Board the responsibility of "B". It recognized that "B" involved the expertise of special knowledge and expertise and that the Medical Board had this special knowledge and expertise; therefore, it deferred to the Medical Board in "B". It did not defer to the employing physician as some now advocate. The people of Arkansas are entitled to the expert judgment of the members of the Medical Board and its formulation of the safety barriers in "B". Political considerations were a prime consideration in "A". They are totally irrelevant in "B". Threats of future action in the political area to force action by the Board members contrary to their judgment relevant to public safety are irresponsible and wroth. The legislators have already demonstrated that they will not endanger human life and safety by acting outside of their range of expertise. The Legislature and the people expect the Medical Board to protect them against incompetent acts. Failure of the Board to forbid questionable procedure by the P.T.A. will rightfully be interpreted by the public as an assurance to them that the Board believes these procedures are performed by the P.T.A. If trusting citizens are injured as a result of the insistence of vocal advocates of the lay medical practice that the P.T.A.'s be given the authority to perform medical acts exceeding their competency, the blame will fall upon the members of the Medical Board by allowing themselves to be swayed by collateral considerations. They are on the Board because they possess unique professional knowledge and have experience. Their obligation is to use the knowledge and the experience responsibly.

* * * *

DR. GEORGE JACKSON

WHEREAS, the Council of the Arkansas Medical Society is mindful that Dr. George Jackson of the State Hospital is approaching normal retirement age, and

WHEREAS, the doctors throughout this State also are mindful of the commendable leadership Dr. Jackson has provided in the development of psychiatric care for the people of Arkansas,

NOW, THEREFORE, BE IT RESOLVED that the Council express to him our support,

hopeful that he will continue to serve our State until full retirement age.

ADOPTED: November 27, 1977
Council of the Arkansas
Medical Society

* * * *

Minutes
House of Delegates
Arkansas Medical Society

The House of Delegates of the Arkansas Medical Society met at 1:45 P.M. on Sunday, November 27, 1977, in the Camelot Inn, Little Rock. Delegates were seated as follows: ASHLEY, Donald L. Toon; BAXTER, John F. Guenther; BENTON, Richard N. Pearson; BOONE, Charles A. Ledbetter; BRADLEY, George F. Wynne; CLARK, R. Jerry Mann; CLEBURNE, Max Baldridge; COLUMBIA, Joe F. Rushton; CRAIGHEAD-POINSETT, Frank M. James, Joe Verser; CRITTENDEN, Milton D. Deneke; DALLAS, John H. Delamore; DREW, J. P. Price; GARLAND, Gaither C. Johnston, Ronald J. Bracken; GREENE-CLAY, J. Larry Lawson; HEMSTEAD, James W. Branch, Sr.; HOT SPRING, Robert White; INDEPENDENCE, Jim E. Lytle; JACKSON, John D. Ashley; JEFFERSON, Banks Blackwell, T. E. Townsend, George V. Roberson; LOGAN, James Harper Bledsoe; MILLER, Donald L. Duncan; MONROE, N. C. David, Jr.; NEVADA, H. Blake Crow; OUACHITA, Cal Sanders; PHILLIPS, Robert D. Miller, Jr.; POLK, David D. Fried; POPE, James M. Kolb, Jr.; PULASKI, Edgar J. Easley, Raymond Biondo, James R. Weber, Paul Cornell, George Mitchell, Philip J. Deer, John McCollough Smith, Gilbert O. Dean, James Pappas, Thomas Bruce, A. Henry Thomas, David L. Barclay, Carl J. Raque; SALINE, Helen Rountree; SEBASTIAN, Ken Lilly, A. C. Bradford, Carl Williams, Morton C. Wilson, A. S. Koenig; UNION, George Warren; VAN BUREN, John A. Hall; WASHINGTON, Joseph H. McAlister; COUNCILORS, John B. Kirkley, Paul Gray, L. J. P. Bell, Raymond Irwin, A. E. Andrews, Robert McCrary, Ray Jouett, Rhys Williams, John Bell, Herd E. Stone, John P. Burge, Lynn Harris, Curtis Clark, Morris Henry, Kemal Kutait; PRESIDENT W. Payton Kolb; PRESIDENT-ELECT George F. Wynne; FIRST VICE PRESIDENT Ken Lilly; SPEAKER Amail Chudy; VICE SPEAKER Asa Crow; SECRE-

TARY Elvin Shuffield; TREASURER Kenneth R. Duzan; PAST PRESIDENTS T. Duel Brown, Joe Verser, C. R. Ellis, Ross Fowler, Robert Watson, T. E. Townsend and A. S. Koenig, Jr.

Speaker Amail Chudy called on President W. Payton Kolb for the invocation.

Business was transacted as follows:

1. Vice Speaker Asa Crow introduced George Mitchell, Chief Executive Officer of Arkansas Blue Cross-Blue Shield, who spoke regarding the change to one locality for fee payments under Medicare. Upon motion of Ellis, the House commended the Society officers this year and the previous year who had worked to accomplish the one locality fee payments.
2. C. C. Long, Executive Vice President, presented to members of the House proposed stationery for "alert" mailings from the headquarters office.
3. Vice Speaker Crow introduced Joe Verser, Secretary of the Arkansas State Medical Board, who discussed proposed regulations for physician's trained assistants. Upon motion of Kutait, the House voted to recommend to the Board amendments to the proposed regulations as follows:
 - Item 15: Amend to require that "the supervising physician shall sign all prescriptions."
 - Item 3: Amend to provide that physician's trained assistants be allowed to give injections only when the supervising physician is on the premises.
 - Item 4: Amend to provide that the repair of any wound by the physician's trained assistant would require that the supervising physician at least view the wound prior to repair by the P.T.A.
4. Charles Ledbetter, delegate from Boone County, presented a resolution reading as follows:

Resolved that an ad hoc committee be appointed by the President of the Arkansas Medical Society to study the governing structure of the Arkansas Medical Society and especially the advisability of making revisions in the Constitution and By-Laws to broaden the base of representation on the Council and the Executive Committee; and to present to the Society specific pro-

posals for amendments if the Committee should determine that amendments are advisable.

A. S. Koenig, Chairman of the Constitutional Revisions Committee, pointed out that his committee is involved in a revision of the Constitution and questioned appointment of a separate committee to study changes in the document. The Boone County representatives reiterated their request for a separate committee because of the broader scope of study intended by the resolution. Upon motion of Ledbetter, second by Jouett of Pulaski County, the House approved the Boone County resolution with the understanding that the committee would report to the Council. John Burge, chairman of the Council, requested that the Boone County

Medical Society furnish for the committee information on those areas of most concern to the county society so that it will be possible to give direction to the committee on its scope of work.

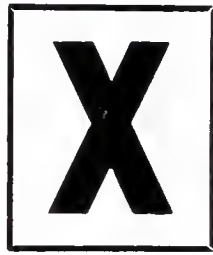
5. Eugene Warren, legal counsel to the Society, discussed a proposal for an initiated petition to get a Constitutional Amendment on the ballot in 1978 and a campaign to get voter approval for the Constitutional Amendment. Upon motion of Lilly of Sebastian County, the House voted to proceed with the program as outlined by Mr. Warren, with a steering committee appointed by the chairman of the Council.

The House adjourned at 3:40 P.M.

APPROVED: Amail Chudy, M.D., Speaker



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February, 1978

Vol. 74 No. 9

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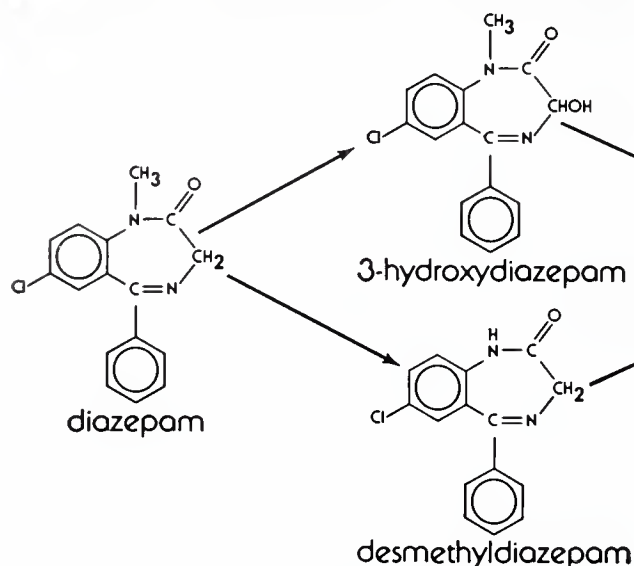
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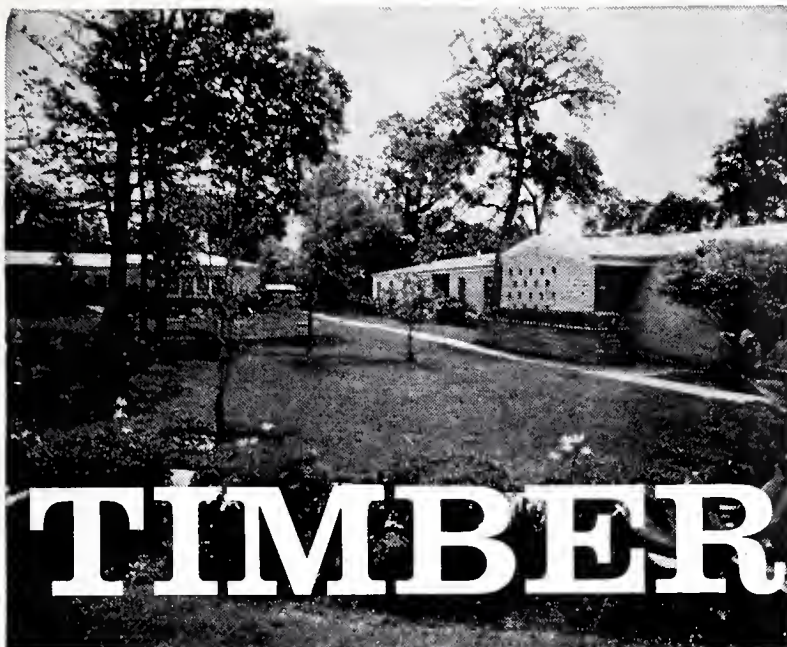
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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Teflon Injection of the Paralyzed Vocal Cord

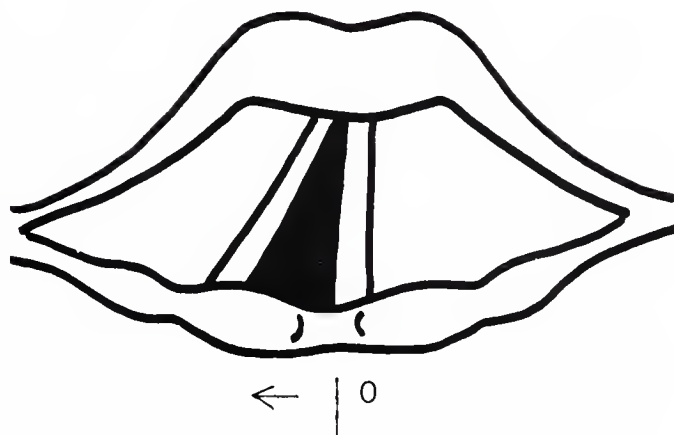
Joe B. Colclasure, M.D.*

The clinical problems associated with incomplete approximation of the vocal cords have been recognized for many years. This lack of approximation or "vocal insufficiency" is most commonly due to unilateral paralysis of the vocal cord. (Fig. 1) Hoarseness is the most frequently noted symptom in this type of paralysis. Depending on the severity of the paralysis, aspiration and loss of effective cough may occur with secondary pulmonary complications. Since medical therapy for the reversal of the paralysis has proven ineffective regardless of the etiology, therapeutic measures have been directed toward returning the involved vocal cord to the midline position. Maintaining the paralyzed vocal cord in this position allows the functioning cord to change with glottic aperture as necessary for the various laryngeal function. With abduction the glottis opens for respiration. (Fig. 2) Partial closure (adduction) of the glottis with increased tension of the functioning cord allows speech production. (Fig. 3) Complete adduction produces total glottic closure necessary for cough and protection from aspiration. (Fig. 4)

Unfortunately, direct surgical measures to bring

the paralyzed cord to the midline have not always proven to be adequate due to the tendency of postoperative scarring to pull the involved vocal cord laterally. In view of the lack of predictable success with direct surgical procedures, materials

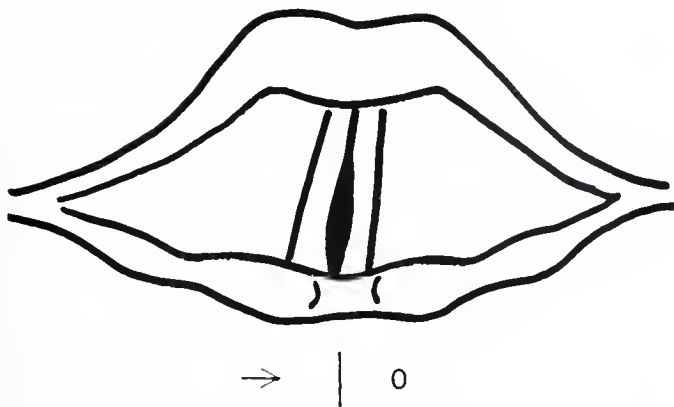
FIGURE II



INSPIRATION

(POST-INJECTION)

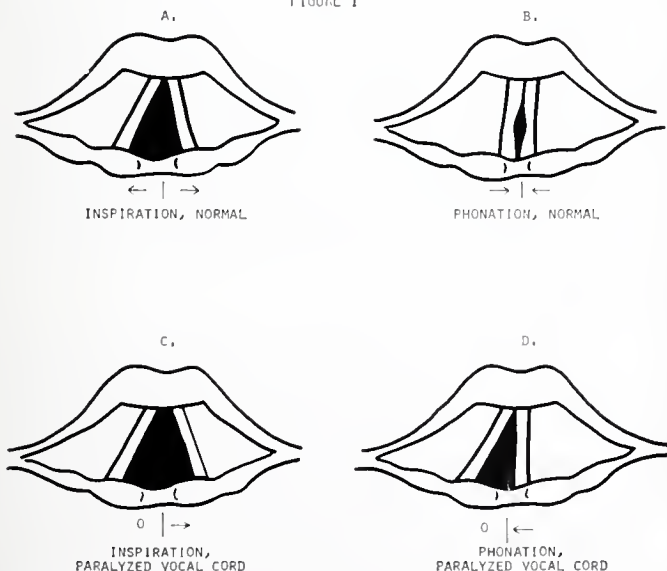
FIGURE III



PHONATION

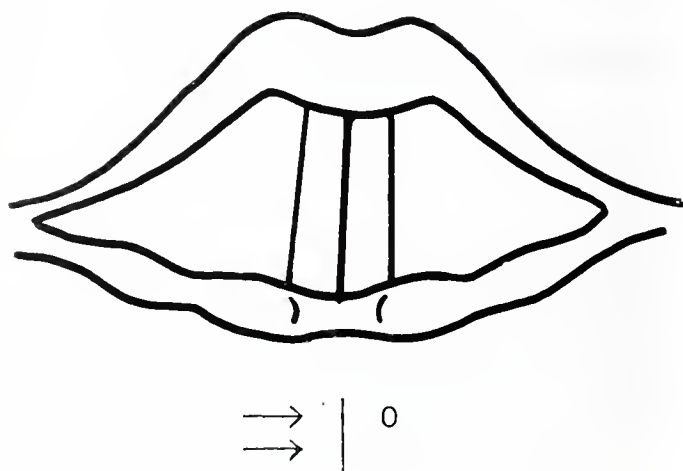
(POST-INJECTION)

FIGURE I



*Otolaryngology and Facial Plastics, Medical Towers Bldg., 9600 West 12th, Suite 1200, Little Rock, AR 72205.

FIGURE IV



COMPLETE CLOSURE
(POST-INJECTION)

were developed for injection into the paralyzed cord, attempting to produce increased bulk and rotation of the vocal cord to the midline. These various injectable materials uniformly produced only temporary improvement until the introduction of teflon paste. Since the introduction of this material in the early 1960's, teflon injection has proven to be a reliable method of maintaining the paralyzed cord in the midline position.

Technique

The procedure can usually be carried out under local anesthesia without intubation. A suspension type laryngoscope is utilized so the surgeon may use both hands. The operating microscope is positioned so as to allow precise placement of the needle and control of the desired fullness of the paralyzed cord. The usual sites of injection include the middle portion of the vocal cord for increasing the fullness of the cord. An additional injection is placed in the posterior position of the vocal cord to rotate the cord to the midline position. The initial injection usually involves 0.5 cc's to 1.0 cc's delivered through a Brünig syringe and a 19 or 20 gauge needle.

Caution is used to inject the minimal amount of material necessary to avoid excessive post-operative endolaryngeal swelling and subsequent respiratory obstruction. Because of the necessity of conservative injection, it is sometimes necessary

for patients to have to return for a second injection to obtain the optimal result.

While the narrowed glottis has been effectively treated by surgically repositioning the vocal cord, the problem of the wide glottis has been more difficult to treat. The first effort to inject material into the larynx was that of Brünig in 1911. At this time he injected paraffin, but the formation of paraffinomas and subsequent tissue slough prevented adoption of this technique.

In 1955, Arnold revived interest in this technique by injecting bone and cartilage paste into the vocal cord.^{2,3,4} Other materials subsequently used included Bovine bone paste, silicone, and teflon glycerine suspension.^{2,3,4,13,18} Unfortunately, bone and cartilage paste resorbed with return of the vocal cord to the previous retracted status. Initially, silicone injection was promising; later, a tendency to migrate was demonstrated.

In the early 1960's Arnold introduced a teflon paste for vocal cord injection. Since that time over 600 patients have received teflon injection into the vocal cord with minimal complications.^{6,7,9,11,14,22,25,27} Once the desirable increased bulk and change of position of the vocal cord are obtained, they tend to remain stable. Animal and postmortem studies have confirmed the tendency for teflon paste to become encased in a heavy fibrous wall with minimal reaction.

Common indications for vocal cord injection include hemiparalysis of various etiologies. The most common category of hemiparalysis is idiopathic or unknown etiology. In these patients a period of six months observation is required prior to injection, as approximately 30% of these patients will have spontaneous return of vocal cord motility. Carcinoma of the lung and thyroid, metastatic carcinoma, and other types of neoplasm may involve the recurrent laryngeal nerve with subsequent unilateral paralysis. Unilateral vocal cord paralysis may occur secondary to previous surgery (particularly thyroidectomies, carotid endarterectomies, and anterior cervical laminectomies).

Other indications include postoperative vocal cordectomies for carcinoma, other acquired vocal cord structural lesions (trauma, excessive tissue removal for benign disease), congenital vocal cord deficiency, and vocal cord bowing.

Complications are unusual. One case of airway obstruction requiring tracheotomy is reported in the literature.¹⁹ One case of teflon migration pre-

senting as an isolated cervical neck mass has also been reported.^{2,4} There have been no reported deaths secondary to this procedure.

Summary

Unilateral vocal cord paralysis can result in significant disabilities—social and occupational as well as physiologic. The proper injection of teflon glycerine suspension fixed the paralyzed vocal cord in the midline position, resolving the vocal cord insufficiency. This procedure usually results in normal or near normal vocalization. The effective cough reflex is restored and aspiration avoided. Teflon injection of the paralyzed vocal cord has proven an effective means of treating the patient with vocal cord paralysis. This treatment causes minimal morbidity and has established long term effectiveness.

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Angiography

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Angiography is invasive, time-consuming, and expensive! Its diagnostic and therapeutic value is well established in current medical practice. The performance and interpretation of these examinations should be executed by physicians trained and experienced in this field. Patient safety, diagnostic quality, and completeness of the angiogram are hallmarks of properly performed arteriographic procedures. An incomplete or non-diagnostic study is worse than none at all since it subjects the patient to all the risks without proper diagnosis or treatment! Angiography should be done to make a diagnosis or to institute proper treatment and should not be looked upon as a stereotyped single-injection examination. Each group of films should be examined and further studies obtained or not obtained, depending upon the clinical problem and the judgment of the angiographer.

Let us discuss the most important factors in performing angiographic studies. First, and most important, is patient safety. One should never place a patient at undue risk for any reason. We recognize there are emergencies and cases in high-risk categories that must be done. These should be handled as expertly and judiciously as possible. Contrast material sensitivity should always be considered and a history taken in this regard. The angiographer is responsible for obtaining and evaluating this information. His ability to handle these reactions should be established. Physiological monitoring (including EKG and intra-arterial blood pressure) is absolutely essential in selective coronary arteriography, and I feel is necessary in all arteriographic studies. With constant EKG monitoring, one can quickly recognize changes in the heart rate or rhythm. The most common, and one of the most important cardiac arrhythmias in the angiographic laboratory is sinus bradycardia. With cardiac monitoring, the slow heart rate can be easily noted and appropriate therapy given. If the bradycardia is on the basis of a vasovagal stimulation, then, IV Atropine in doses of 0.4 mg. to 0.6 mg. will quickly correct this arrhythmia. In addition to bradycardia, other cardiac arrhythmias can be closely observed and treated if necessary. Constant monitoring of intra-arterial blood pressure will display changes in pressure which may be very significant.

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Proper technique in handling needles and catheters must be strictly observed in an uncompromising fashion. Instruments should be handled in a delicate manner. Driving or forcing a catheter or needle into the orifice or lumen of a vessel is not the mark of a "mature" angiographer. Handling these materials with precision and delicacy is an indication of one's ability and judgment. Knowing when to terminate an examination is just as important as knowing when to begin.

Quality and completeness of an angiogram is secondary only to patient safety in importance! Films of excellent radiographic quality are necessary for complete diagnosis. One should not accept films with poor radiographic technique or with the patient improperly positioned. Multiple views are frequently necessary to establish the diagnosis. Whenever necessary, these views should be obtained, providing they do not significantly increase risk to the patient. Any time a catheter is inserted into an individual, that patient deserves the best quality examination that is currently available. This approach sometimes takes a little longer, but it frequently avoids a repeat arteriogram. I cannot stress too much the importance of being aware of the clinical problem and its proper angiographic evaluation. Films of nondiagnostic radiographic quality should never be accepted by a competent radiologist.

Occasionally, I hear the radiographic equipment used is not sufficient to produce quality angiograms. If this is true, the patient should be referred to an angiographic laboratory where complete studies can be obtained. Proper radiographic equipment is essential to quality angiography. The size of the radiology department, hospital, or city does not necessarily indicate the quality of angiographic studies performed. I have seen small departments produce excellent work, while an occasional large institution has produced poor and incomplete studies. There is, however, a direct correlation between angiographic quality and the demands and persistence of the angiographer. One should always strive for the best and most complete study possible, never accepting an examination that will simply "get-by." Dedication to quality, completeness, and patient care must begin with the angiographer and be extended to his entire staff.

Cardiovascular and peripheral vascular surgery is becoming more sophisticated in its approach to vascular problems. Angiography must become more sophisticated to provide the diagnostic information necessary for proper treatment.

Possible Oncogenic Viruses of Man

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Viral oncology (the study of viruses as tumor producing agents) is a rapidly evolving and important area in cancer research today. The unequivocal documentation of an oncogenic virus of man awaits further investigation. In all probability, one will be identified based on the rather ubiquitous presence of oncogenic viruses in lower animals, e.g. birds,¹ mice,² cats,³ cattle,⁴ as well as in the lower primates⁴ which are phylogenetically closely related to man.

The genetic material (genome) of oncogenic viruses can be either deoxyribonucleic acid (DNA) or ribonucleic acid (RNA). Oncogenic viruses have been classified into four main categories by Temin:⁵ 1) the non-enveloped (do not possess a unit membrane structure) DNA tumor viruses, 2) the herpes-like DNA tumor viruses, 3) the RNA sarcoma viruses, and 4) the RNA leukemia viruses; the oncogenic RNA viruses frequently being referred to as oncornaviruses.

The non-enveloped DNA tumor viruses include Polyoma virus (a mouse virus), SV40 virus (a simian virus), and the human adenoviruses with demonstrable oncogenicity in lower animals. Polyoma and SV40 virus particles (virions) have a diameter of about 40 nanometers (nm) and contain a circular double-stranded DNA genome with a molecular weight (M.W.) of approximately 3×10^6 daltons. Adenoviruses have a diameter of about 80 nm and a genome of about 20×10^6 daltons of noncircular double-stranded DNA. The usual course of infection with these viruses leads to virus production (productive infection) and to cell death. However, in some cells under certain conditions an abortive infection occurs which may ultimately lead to cellular transformation (the conversion of a normal cell to a neoplastic cell). The transformed cell probably contains integrated within its chromosomal DNA the entire viral genome; however, only a portion of the total gene complement of the viral genome is expressed, since complete genome expression leads to viral replication and to cell death.

The herpes viruses with documented oncogenic potential include the agents of Marek's disease of chickens and Lucke's carcinoma of frogs. These viruses have a diameter of approximately 100 nm

and contain a genome of linear double-stranded DNA with a M.W. of approximately 100×10^6 daltons.

The RNA sarcoma viruses include the avian sarcoma viruses, the murine and feline sarcoma viruses, and the sarcomagenic viruses of lower primates such as the monkey and the gibbon ape. These viruses contain a single-stranded RNA genome with a M.W. of approximately 10×10^6 daltons. Under appropriate conditions these viruses can transform an entire population of susceptible target cells. All of the transformed cells contain the entire viral genome but differ relative to the degree of viral genome expression. In some instances the entire viral genome is expressed and one observes a productive infection.

The RNA leukemia viruses are widely distributed in nature and are usually transmitted from parent to offspring via the germ cell (vertical transmission). Morphologically and immunologically these viruses are closely related to the RNA sarcoma viruses⁶ and within a given animal species probably differ in only a few of their genes. The virions of the RNA sarcoma and RNA leukemia viruses are structurally indistinguishable. These agents are spherical enveloped viruses possessing a unit membrane structure surrounding the viral core of protein and genomic RNA. Infection of susceptible cells with the RNA leukemia viruses leads to virus production, whereas, with the sarcomagenic RNA tumor viruses, one may observe an abortive infection. Cells from leukemias induced by the RNA leukemia viruses contain the entire viral genome and usually produce a virus of the same type as the original infecting virus.

How do the oncornaviruses induce cancer? Tumor induction by the RNA tumor viruses is primarily a function of an endogenous enzyme referred to as Reverse Transcriptase (RT). This enzyme directs the synthesis of a DNA copy of the viral genome which is RNA. The DNA copy is considered to be the transforming principle, and as is the case with the DNA tumor viruses, is integrated covalently within the chromosomal DNA of the host cell. The manner in which the host cell acquires the viral genome and the mechanism(s) for its subsequent expression, as evidenced by cellular transformation, is currently being explained by three theories: the Oncogene-

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Virogene Hypothesis of Huebner and Todaro,^{7,8} the Protovirus Hypothesis of Temin,⁹ and the Exogenous Virus Hypothesis of Baxt and Spiegelman.¹⁰

According to the Oncogene-Virogene Hypothesis, the genetic information coding for the synthesis of an RNA tumor virus (the virogene) is present in every cell of the organism and is transmitted vertically, having been acquired at some time in the evolution of the species. The oncogene is the genetic component of the virogene that codes for a gene product(s) with the biologic capacity to induce cellular transformation. The oncogene may be expressed either with or without virus production.⁷ The oncogene normally is not phenotypically expressed but may be activated or derepressed by some insult such as a chemical or perhaps another virus.

According to the Protovirus Hypothesis, transcription from RNA to DNA by means of a cellular RT-like enzyme occurs as a natural phenomenon in some cells, and is postulated to be important in embryogenesis. Presumably, the transferred DNA's are integrated within the chromosomal DNA of the recipient cells and, thus, act as messengers in the process of intercellular communication. Mutations in the DNA and/or aberrations in its integration could lead to the appearance of a gene(s) coding for the transforming protein(s) and/or C-type virus. The primary difference in these two theories resides in the thesis that the oncogene is inherently present in the germ cell (Oncogene-Virogene Hypothesis) and, therefore, is obtained as part of our innate genetic complement, rather than being produced *de novo* as a result of mutation and/or integration (Protovirus Hypothesis).

The Exogenous Virus Hypothesis proposes that an exogenous oncornavirus infects (horizontal mode of transmission) and brings in the "oncogene" which subsequently transforms the host cell.

In each of these theories it is the expression of the oncogene which results in the transformation of the host cell and in the maintenance of the transformed state. What is the product of the oncogene? Bader¹¹ notes that little attention has been devoted to the elucidation of the nature of this protein(s) even though the pervasive contemporary view supports the concept of a viral coded transforming protein(s).

According to Baltimore,¹² the product of the "onc" gene (the gene coding for the transforming

protein), is responsible for the transformation of cells by RNA sarcoma viruses. This protein is not necessary for viral replication since temperature-sensitive mutants in the gene coding for the transforming protein do not alter the replicative capacity of the virus. The size or nature of this protein is unknown but studies of the deletion of genetic information in non-transforming variants of sarcoma viruses indicate that approximately 16% of the genetic information of the viral genome may be involved in the synthesis of this protein. Based on the total molecular weight of the viral genome, the calculated M.W. of the transforming protein was approximately 40-50,000 daltons.¹²

Burny, *et al.*,¹³ by calculating the protein coding capacity of the viral genome and comparing that figure to the documented molecular weights of viral gene products (coat glycoproteins, group specific proteins, and reverse transcriptase) determined that sufficient genetic information remained to code for a transforming protein with a M.W. of approximately 30,000 daltons.

Isolation of this protein with the subsequent demonstration of its biologic capacity to transform cells would lend much credence to the theorized oncogene. Theoretically, the purified protein in an altered form (one that lacks biologic activity) could be used in active immunization, and a homologous antisera raised against this protein could be used passively as a therapeutic agent.

Is there evidence for a viral etiology of cancer in man? What are the experimental approaches to detect possible oncornaviruses in human cancers? Reverse transcriptase, originally and independently discovered by Temin and Mizutani¹⁴ and Baltimore,¹⁵ has been accepted as a universal property of oncornaviruses. The presence of RT activity in association with particles possessing a density of approximately 1.16-1.19 g/cm³ (the density of RNA tumor viruses) as determined by isopycnic centrifugation is considered to be characteristic of oncornaviruses. Another accepted feature is the presence of a relatively heavy, single-stranded RNA molecule (viral genome) with a sedimentation coefficient of 60-70S. Thus, the demonstration of RT activity in association with particles of a density of approximately 1.16 g/cm³ containing 60-70S RNA have been used as biochemical and physical criteria in the detection of putative oncornaviruses of man.

Using these criteria, Schlom, *et al.*¹⁶ showed that human milks contained particles with a density of 1.16-1.19 g/cm³ and that these particles contained RNA and a reverse transcriptase enzyme. The origin of this reverse transcriptase activity in human milk is of utmost importance, since it is known that the causative agent of murine mammary carcinoma,¹⁷ and the causative agents of several murine leukemias¹⁸ are transmitted horizontally to progeny in milk. Later, the same investigators¹⁹ showed that the particles with reverse transcriptase contained 60-70S RNA and that this RNA was used as the template in the reverse transcriptase reaction. Numerous human milk preparations were examined with positive results, particularly in women with a strong familial history of breast cancer. These data provide evidence that human milk may contain particles that are similar biochemically and physically to the known RNA tumor viruses of lower animals and are, therefore, very suggestive of a possible causal relationship.

Furmanski, *et al.*²⁰ prepared subviral cores (virus particles in which the envelopes had been removed) from oncornavirus-like particles found in human milk and determined that the major protein of these cores had a molecular weight of 27,000 daltons. The protein was found only in the viral core fractions of reverse transcriptase-positive milk. The major core protein of the human milk oncornavirus-like particle was electrophoretically identical to the major core protein of the mouse oncornavirus which induces murine mammary carcinoma (mouse mammary tumor virus, MMTV).

Spiegelman, *et al.* in 1972,²¹ presented evidence of the presence of MMTV specific RNA in tissue from a human breast cancer. Using the MMTV genome as a template, radioactive DNA was synthesized by the endogenous reverse transcriptase reaction. This radioactively labeled DNA was denatured from the viral RNA, purified, and then used as a molecular probe to search for homologous RNA in human breast tumors. The probe was also used with normal breast tissue and fibrocystic disease tissue. Nucleic acids with homologies will base pair or anneal by forming hydrogen bonds. The degree of homology or nucleic acid similarity is determined by the amount of radiolabeled DNA that anneals to the test RNA. Of the 29 malignant tumors examined, 67% gave positive responses. None of the RNA preparations prepared from 21 specimens derived

from normal breast tissue or the nonmalignant fibrocystic and gynecomastia tissues and fibroadenomas were positive. Negative responses were also observed with RNA preparations prepared from normal placenta, liver, and intestine. Also, no positive responses were observed with any of the RNA preparations prepared from cells obtained from human leukemias and sarcomas. Breast tumor RNA hybridizable with MMTV DNA was not hybridizable with a radiolabeled DNA probe prepared from the genome of an unrelated murine oncornavirus. These experiments imply that there is genetic information in the RNA of human breast tumor cells that is specifically homologous to that of MMTV.

Similar experiments using the same basic protocol were carried out with RNA preparations prepared from human leukemia cells and a tritium-labeled DNA probe prepared from a murine leukemia virus known as Rausher virus.²² Of 27 human leukemic white blood cell samples tested, 89% contained RNA that specifically hybridized to the Rausher leukemia virus (RLV) DNA probe, but not to a DNA probe prepared from MMTV or avian myeloblastosis virus (AMV). RNA preparations prepared from control white blood cells or from other normal tissues, both fetal and adult, failed to show a significant degree of hybridization with the RLV DNA probe.

Because RNA leukemia viruses are intimately associated with RNA sarcoma viruses in lower animals,⁶ RNA's from human sarcomas were tested with the DNA probe prepared from RLV.²³ A parallel situation was suggested to occur in humans, as 68% of human sarcomas were shown to contain RNA that hybridized to RLV DNA. The sarcoma RNA's did not anneal to the MMTV or AMV DNA probes. RNA's from normal human tissues failed to show a significant degree of hybridization.

Human lymphomas were also found to contain RNA that possessed homology to the Rausher leukemia virus DNA probe, but not to the unrelated MMTV or AMV probe.²⁴ Of the RNA's derived from lymphomas, 69% hybridized with RLV DNA while the 48 control samples of RNA failed to hybridize.

The above hybridization experiments on breast cancer, leukemia, sarcoma, and lymphoma were designed to detect approximately 0.0001 microgram or less of the complementary RNA in the samples tested. The sensitivity of the method is,

therefore, being pushed toward its limit; however, values were considered statistically significant only if the degree of hybridization was greater than three standard deviations of the mean value of the control.

There is additional evidence for a viral etiology in human leukemia. In 1971, Steeves, *et al.*²⁵ showed that fluids from short-term cultures of cells from patients with leukemia or Hodgkin's disease yielded an agent which enhanced spleen focus formation by Friend virus. Friend virus is an inherently defective animal virus which normally requires the presence of an endogenous lymphocytic leukemia virus to produce erythroleukemia and splenic foci in susceptible strains of mice. Thus, the culture fluids from cultivated human leukemia and Hodgkin's cells yielded a putative helper agent, presumably a leukemia virus.

Type C viruses (a specific structural form of oncornavirus) have been isolated from naturally occurring lymphosarcomas and myelogenous leukemias in an old world primate, the gibbon ape. In several instances, cell-free extracts of gibbon ape leukemia cells have produced viremia or myelogenous leukemia or both in juvenile gibbon ape recipients.

In 1974, Gallagher, *et al.*²⁶ isolated and characterized an RNA-directed DNA polymerase from peripheral blood leukocytes of a patient with acute myelomonocytic leukemia. This enzyme demonstrated the essential biochemical characteristics of RT enzyme. In addition, this enzyme could be differentiated immunologically from all other known cellular DNA polymerases. This enzyme, however, could not be immunologically differentiated from that of a primate type C virus suggesting a possible relationship. Five of six biochemically defined RNA-directed DNA polymerases from patients with acute myelogenous leukemia were inhibited by antibody directed against the primate type C virus RT enzyme suggesting that a common viral element exists in human myelogenous leukemia cells. They hypothesize that the leukemic state is induced by the activation of endogenous viral information or may possibly be due to the end result of infection by an exogenous oncornavirus in a manner analogous to the horizontal transmission of leukemia in some groups of house cats.³

In 1975, Gallagher and Gallo²⁷ reported the continuous production of an oncornavirus-like

agent possessing the same characteristic reverse transcriptase in three separate cultures of leukocytes prepared from a single bleeding of a patient with acute myelogenous leukemia. The patient had no family history of leukemia or lymphoma, and no known exposure to physical or toxic chemical agents. However, she had been in contact with a friend who had leukemia, prior to the onset of her disease.

The oncornavirus-like particles synthesized in the leukocyte cultures prepared from this patient were further characterized by biological, immunological, and biochemical assays.²⁸ The results showed that the virus was immunologically closely related to the simian sarcoma virus (SSV) and the simian sarcoma-associated virus (SSAV), originally isolated from a wooly monkey fibro-sarcoma. These virus particles were infectious, and were propagated to high titer in several cell types. In direct contrast to the host range of SSAV, the human leukemia virus-like isolate (called HS23V-1) infected marmoset cells poorly and human cells efficiently. Murine sarcoma virus strains are defective for replication and require leukemia viruses for propagation. The human oncornavirus-like agent could serve as "helper virus" in the replication of murine sarcoma viruses. In nucleic acid hybridization studies, the HS23V-1 RNA's showed more homology to DNA from those cells infected with SSV than to DNA preparations prepared from uninfected cells. The low degree of hybridization between the viral RNA's and DNA from normal cells indicates that viral genetic material related to HS23V-1 is not maintained as an endogenous genetic component in humans, at least not in all cells.

In 1975, Nooter, *et al.*²⁹ isolated infectious type C virus-like particles from human leukemic bone marrow cells. These cells were from a four-year-old child with lymphosarcoma which had progressed to a state of lymphoblastic leukemia. The cells were cultured in the presence of phytohemagglutinin (a cellular mitogen) and were positive for C-type virus-like particles in three days. A second isolation was made one month later while the patient was in remission by the cocultivation of the buffy layer of a peripheral blood specimen with human embryonic fibroblasts. Within two weeks of cocultivation, virus-like particles were demonstrable by electron microscopy, and viral antigens were demonstrable in infected cells using the immunofluorescence technique.

Many investigators today believe that the most likely viruses as candidates in the etiology of human cancer are herpes-simplex virus (HSV), cytomegalovirus (CMV), and Epstein-Barr virus (EBV). The studies of Rapp, *et al.*³⁰ consisted of inactivation of HSV type 1 and 2 and of CMV by ultraviolet irradiation and by photodynamic inactivation. When tested after these treatments, these agents remained infectious but produced an abortive infection of the host cell. These inactivated viruses were then used to transform hamster embryo fibroblasts. Serological tests revealed the presence of virus-specific antigens in the cytoplasm and on the surface of the transformed cells. Inoculation of the transformed cells into syngeneic hosts produced tumors from which tumor cell lines were derived. These tumor cells contained virus-specific antigens, and the sera from the tumor bearing animals contained virus-specific neutralizing antibodies. Nucleic acid hybridization studies revealed the presence of virus-specific messenger RNA in the transformed cells, suggesting the necessity of viral genome persistence in perpetuation of the transformed state.

Herpes simplex virus type 2 is implicated as a causative agent in cervical carcinoma. Sero-epidemiological data indicate that 37–100% of women with cervical carcinoma have circulating neutralizing antibodies to HSV-2 antigens as opposed to 7–67% of women possessing such antibodies in the matched normal population.³¹ Also, HSV-2 antigens have been detected in cervical carcinoma cells using the indirect immunofluorescence assay procedure.³² Additional evidence of a possible etiological role of HSV-2 in cervical carcinoma is offered by the isolation of HSV-2 from a cell line derived from a cervical carcinoma.³³

Information also exists which links EBV to certain human malignant conditions. The virus has been demonstrated in lymphoblastoid cell lines derived from Burkitt's lymphoma, from the peripheral blood of patients with infectious mononucleosis and from apparently healthy donors. Patients with histologically confirmed Burkitt's lymphoma revealed high antibody titers against EBV antigens, although viral particles were not readily detected within the tumors. Also, patients with anaplastic nasopharyngeal carcinomas; with a lymphocyte depleted form of Hodgkin's disease; and with a poorly differentiated lymphocyte-lymphoblast lymphoma,

regularly demonstrated high antibody titers against EBV-antigens. Healthy donors, as well as patients with the majority of other lympho- or myeloproliferative malignant conditions, failed to exhibit a similar antibody pattern to EBV antigens.

Additional support for a possible role of EBV in the induction of human malignant disease stems from similar forms of neoplasia induced by oncogenic animal herpes viruses. Studies of the virus-lymphocyte relationship in Marek's disease of chickens and herpes virus Saimiri infections of monkeys reveals striking similarities to that observed in EBV infection of human lymphocytes as seen in Burkitt's lymphoma cells. *Herpesvirus saimiri* induces a lethal lymphoma when inoculated into a number of primates.³⁴ Marmosets and owl monkeys developed malignant lymphomas (100%) after inoculation with *H. saimiri* that are invariably fatal within 50 days.³⁵ Marek's disease virus induces a highly contagious lymphomatosis in chickens, but can also cause a self-limiting disease, and in some chickens no disease at all. In both instances virus can be recovered from tumor cells by cocultivation with susceptible host cells,³⁶ thus, demonstrating the persistence of viral genomes within the neoplastic tissue.

Zur Hausen, *et al.*³⁷ prepared a radioactive EBV-DNA probe and tested for homology in DNA preparations prepared from human lymphoblastoid cell lines, and from human tumor cells of Burkitt's lymphomas and anaplastic carcinomas of the nasopharynx. In each case a significant degree of hybridization was observed. In contrast, DNA preparations prepared from other tumors of the head and neck, as well as control DNA preparations from human epithelial cells and fibroblasts, failed to hybridize significantly with the radioactive EBV-DNA probe. No cross-reactions were observed with DNA preparations prepared from cells infected with HSV type 2 or human CMV. These results show that despite the paucity of viral particle production, cells from Burkitt's lymphomas and anaplastic carcinomas of the nasopharynx contain EBV-specific DNA sequences. These data were substantiated by synthesizing RNA complementary to EBV DNA in the presence of radioactive ribonucleoside triphosphates and using the RNA probe in molecular hybridization experiments.³⁷

Zur Hausen *et al.*³⁸ have found that a virus-specific membrane antigen can be detected in cells of most Burkitt's lymphoma biopsies. However,

it is difficult to establish an etiological relation to Burkitt's lymphoma because there is a high incidence of antibodies to this antigen in the human population. Infectious mononucleosis, a disease of a lymphoproliferative nature which resembles a self-limiting neoplastic process is also thought to be caused by EBV. Attempts to establish a correlation between mononucleosis and the later occurrence of cancer have been unsuccessful.³⁶ In tissue culture, lymphocyte preparations prepared from Burkitt's lymphoma and from peripheral blood specimens of patients with infectious mononucleosis, as well as epithelial cells from nasopharyngeal carcinoma, develop into permanent cell lines. Since permanent cell lines are, in general, considered to be transformed, the current view is that these cell lines are transformed.

Assuming that human tumor viruses exist, what is the mechanism of their transfer? Numerous "cancer families" have been reported with such a striking incidence of tumors, that mere chance could be reasonably excluded. Gross⁴ in his 1970 book, *Oncogenic Viruses*, devotes many pages to these "cancer families." Data obtained from numerous statistical studies leave little doubt that cancer is more frequent in families of cancer patients than in the general population. This does not prove contagion in the usually sense of horizontal transmission, for genetic factors cannot be excluded. There is a normal incidence of Hodgkin's disease among spouses of patients but a higher incidence in siblings and children of patients.³⁹ Moyers,⁴⁰ in a study on multiple myeloma, noted that a female patient was from a "cancer family." Two sisters had died of pancreatic carcinoma, one brother of lung cancer and five cousins of various other cancers. Another cousin with lung cancer was still alive. This multiple myeloma patient has since died of her malignancy, making a total of ten cases of cancer in one generation. Most of these were progeny of two sisters married to a father and son, so that a double kinship existed.

Clusters of leukemia have been described in the past few years. One such cluster consisted of eight cases in Niles, Ill.⁴ These occurred between 1957 and 1960 and all attended the same school. The authors report that these cases constituted a significantly increased incidence of leukemia in children in a town of this size.

A few reports are available describing the accidental transmission of cancer from man to

man. The following is an account of a most bizarre case.⁴ In 1923, a medical student, while aspirating fluid from a wound following radical mastectomy in a woman suffering from an adenocarcinoma of the breast, accidentally injected some of the material deep into the tissues of his hand. Two years later, an irregular induration appeared at the inoculation site. This induration slowly increased in size and the tumor was removed. Histological examination revealed a fusiform sarcoma. The tumor reoccurred at the same site and rapidly metastasized to the arm. Shortly thereafter, the entire arm was disarticulated. Two months later metastases appeared above the clavicle and in the neck of the patient. The patient died three months later. There had been no history of malignant disease in his family for the three preceding generations.

There have also been several cases of renal grafts resulting in transmission of cancer.⁴ In some cases, kidneys (disease free) from patients dying of various malignancies, have been transplanted to immunosuppressed patients resulting in the death of the recipient due to cancer of the same type as the donor. In two cases the immunosuppressant drugs were discontinued and the kidney was soon rejected. The metastases disappeared and later another kidney was successfully grafted with no return of the malignancy.

The mechanisms by which environmental carcinogens produce cancer have not been elucidated. It is postulated that these carcinogens may act directly by inducing somatic cell mutation(s) or indirectly by derepression of an endogenous oncogene. In genetically determined diseases involving deficiencies of the host immune system, the incidence of cancer is much higher than in the normal population. There is also an increased incidence of malignancy in people with chromosomal abnormalities. A striking example of a possible predisposition to the occurrence of cancer has come from studies of bone marrow transplants. Remission of leukemia following bone marrow transplantation has, on several occasions, been followed by the return of the disease. In at least two cases, the reappearing leukemia cells have been identified as those of the donor.³⁶ These observations clearly imply that an unknown factor(s) present in the recipient may transform the normal donor cells to a neoplastic state. Whether or not this factor is a tumor virus remains to be seen.

A vaccine for the prevention and treatment

of cancer in humans is a major goal in viral oncology. This goal has been realized in Marek's disease of chickens. The vaccine is prepared from a herpes virus of turkeys that is antigenically related to Marek's disease virus, but is not pathogenic in either turkeys or chickens. This, of course, will be difficult to do with humans since it will not be possible to prove by trial whether a related immunizing virus is oncogenic. Rapp, *et al.*,³⁰ have reported that inactivated herpes simplex virus induces transformation of cells *in vitro*, and that the subsequent inoculation of these cells into test animals produced tumors. Thus, the use of inactivated virus as a cancer vaccine is potentially hazardous.

While the main thrust of viral oncology deals with the isolation and characterization of possible oncogenic viruses of man with immunotherapy as the ultimate goal, other measures for the potential control of neoplastic diseases in man should be developed. These may include clinical use of interferon or other antiviral chemotherapeutic agents in conjunction with surgical procedures, as well as the control of carcinogenic agents in our environment.

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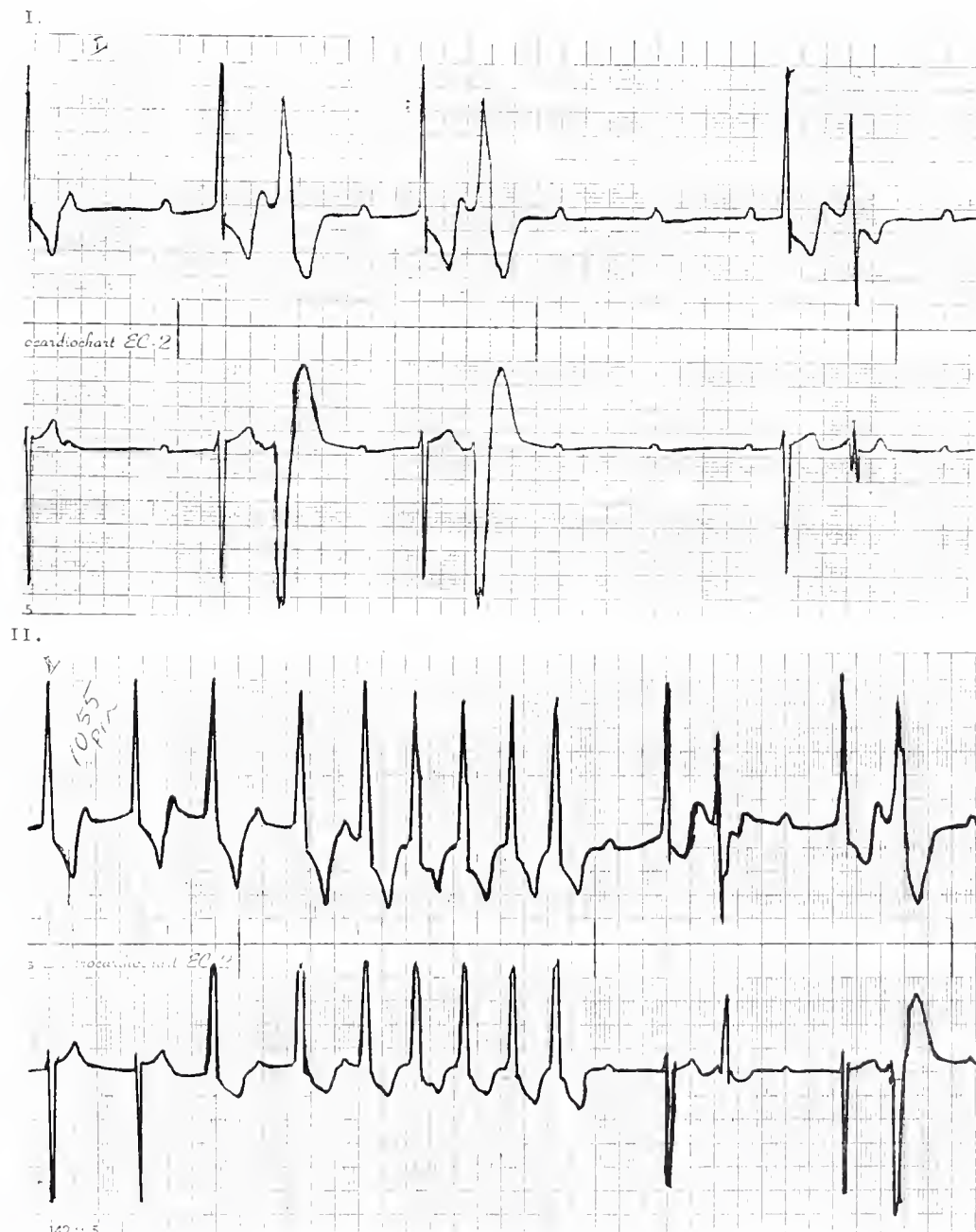
ELECTROCARDIOGRAM

OF THE MONTH

The Department of Cardiology, University of Arkansas College of Medicine

43-year-old male with hypertension on medications which included Digoxin 0.25 mg. qd. developed renal failure and syncope. Below are parts of his Holter monitor tracings. The leads are simultaneous.

(See Answer on Page 362)



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The Role of the Trainer in Modern Athletics

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The background of athletic training is long and colorful. Primitive men required a body trained effectively for use of each physical ability, solely for survival. He relied upon a healer to assist him in maintaining his physical well-being through the media of prayer, fasting, and/or medication. These magician-priests of the primitive tribes of North Asia utilized various herbs as anodynes, which were handed down from father to son, and in this way, the pharmacology of athletic training probably began. However, it was not until the rise of the Greek civilization that a strongly organized athletic picture evolved with the establishment of the Olympic games, which produced coaches and trainers to assist athletes in achieving maximum physical perfection.

With the appearance of the professional athlete and Athenian society, skilled trainer-coaches came into existence with the evolution of technical improvements for the sport of their day, employing a basic knowledge of anatomy, physiology, and dietetics to improve athletic condition. The "youth or boy rubbers" and the "annointers" were also professional trainers and the techniques of massage, diet, prescription, and general fitness of the athlete were of their particular concern.

In Ancient Rome, Galen served as physician to a gladiatorial school and wrote at considerable length about the benefits of proper diet, rest, and exercises as prerequisites for physical conditioning. Herodicus of Megara was probably the greatest of all the great trainers, and was likewise a physician. Herodicus was a teacher of Hippocrates and the first physician to recommend exercise as the method of treatment for disease.

For many centuries after the fall of the Roman Empire there was nearly a complete lack of interest in sports activities until the beginning of the Renaissance. Training as we now know it fully evolved in the nineteenth century with the first establishment of intercollegiate and inter-scholastic athletics in the United States. The initial trainers of this era were those who "rubbed down" the athlete. They possessed little technical knowledge of anatomy or disease. Subsequently it has taken a good many years for the trainer to attain the status of a bonafide member of the athletic team.

Today a professional trainer is a well-qualified individual with a thorough understanding and a special skill of the many facets of training in the care of athletic injuries. Ideally he works in a team approach with the physician and the coach. In the past, the coach has been content to confine training to management of preliminary condition-

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ing and preventative strapping. However, today, in keeping with modern technical advances in training and equipment changes, the high school coach finds that he must become more familiar with the broader aspects of the athletic training program.

In 1950, the National Athletic Trainers' Association was founded in Kansas City, Missouri, for the express purposes of establishing professional standards and exchanging and disseminating information. In 1954, the American College of Sports Medicine was founded to promote research in medical problems encountered with physical exercise and sports. It has made numerous contributions to the area of training and has increased the understanding and knowledge of coaches and trainers so that they can more adequately train and care for the athletes.

In the State of Arkansas, a definite effort is being made to disseminate information in exercise physiology, conditioning, rehabilitation, diagnosis and treatment of the athlete. This has been recently initiated by the Department of Orthopaedic Surgery at the University of Arkansas under the guidance of Dr. Carl Nelson, to include lectures by sports medicine personnel to junior high school coaches during the annual "All-Star" Week. There has been a definite trend toward establishing training as a legitimate area of the high school athletic program, although measures providing for the budgeting of salaries, equipment, and facilities are not generally in effect in this State.

INCIDENCE OF ATHLETIC INJURIES

By the basic design of athletics in "all out" exertion in many situations requiring body contact, the number of persons injured in sports activities annually in the United States is overwhelming. Insurance companies over the years indicate that tens of thousands of young athletes suffer fractures, sprains, strains, cuts, and concussions.

Approximately 900,000 youths participate in high school football annually and 30,000 at the college level. The high school athlete completing a full season of practice and games has a 20% chance of an injury during the season and an 8% chance of a serious injury. There is no team sport anywhere in the world where injury occurs more frequently than American football.

An annual survey of football fatalities and injuries has been conducted since 1931, by the

Committee on Injuries and Fatalities of the American Football Coaches' Association. This reveals pertinent information that should be kept in mind when a school is considering the budget for an athletic trainer at the high school level. A partial summary of the findings of the 40th (1971) annual report indicates the following:

1. A total of twenty fatalities were directly related to football in 1971—fifteen were in high school and three in college.
2. Twelve fatalities were associated with indirect causes (heat stroke, heart failure, etc.)
3. Football fatalities have averaged over 19.1 per year over the past 40 years.
4. In 1971, sixteen injuries to the head, neck, and spinal cord resulted in death.

In view of these findings, the Committee has made a number of recommendations that trainers and coaches would do well to heed. Among other things, these recommendations stress a need for a thorough and comprehensive medical examination, intensive pre-conditioning program, lengthening of the pre-season program, attendance of a physician at all games, strict enforcement of game rules, condemnation of "spearing", proper and ample conditioning, exercises to strengthen the neck and properly fitted helmets. Most of these deaths were preventable. With an alert, well-trained athletic trainer present, careful observation of environmental conditions coupled with a sensible approach to acclimatization during training would prevent most cases of heat exhaustion or heat stroke. Likewise, proper fitting of helmets and observation of proper blocking and tackling techniques could most likely significantly decrease the incidence of severe head and neck injuries.

ROLE OF THE TRAINER

1. The primary responsibility of the trainer is the prevention, treatment, and care of injuries in athletes under his jurisdiction. With reasonable foresight, many accidents can be prevented. Prevention begins with arrangements for a thorough, pre-participation of pre-season physical examination of all players. Also, surveys of the dressing room, shower room, playing field, and equipment are made to eliminate all possible hazards. Trainers spend more time on prevention of injuries than is commonly believed by the average layman or by most school officials. It should be emphasized that the care and treatment are only part of the trainer's duties, and probably a less important part. The more injuries that can be prevented, the fewer there will be to treat and

rehabilitate. Since an injured athlete is of no value to his team, his coach, or to himself from the athletic standpoint, the greatest concern must be with prevention of the injury which causes him disability.

2. Careful and constant supervision of all playing facilities in areas with respect to maintaining safety standards at a constant level by eliminating any potential or existing hazards is mandatory. At the University of Arkansas, the artificial turf is moistened prior to practice in an effort to diminish the number of significant knee and ankle injuries during the practice sessions, and this has been extremely valuable to date.

3. The institution of a carefully planned scientific program of conditioning the athlete throughout the year will greatly assist in reducing the number of injuries. The athlete who enters competition after insufficient pre-season training, or who begins preliminary training in a state of physical unfitness is an excellent prospect for injury. It is therefore mandatory that the trainer plan a conditioning and strength program and see that his athletes follow such a program during off-season as well as in-season periods. At the University of Arkansas, conditioning and strength training for the fall football season begins at the close of spring practice in mid-April, and the major portion of the program must be carried on by the athlete himself. He cannot be expected to do this without proper direction and instruction. Each player is given a specific program which he is asked to continue until mid-August, when he reports for fall football. He is encouraged to supplement this program by jogging, distance running, running wind sprints, etc. Furthermore, each boy is assigned a weight at which he is expected to report for the first day of fall practice. It is impressed upon an athlete who is symptomatic during the spring or summer months to be examined carefully as early as possible so that he does not report to the fall program with a lingering injury.

4. Careful attention to the selection and fitting of all gear and equipment will also minimize the probabilities of injury. Procuring the best equipment possible with the funds available should be considered as a guiding rule and a direct function of the trainer. Good, properly fitting equipment should be the guaranteed right of every athlete. Of course, many schools have a limited budget with which to work, and this, of necessity, handicaps them in the purchasing of quantities of

equipment. Although the budget is limited, one would warn against the purchasing of large quantities of second rate equipment because this means none of the players is properly protected. It is recommended instead that the school purchase the best even though the supply may be limited. Too much emphasis cannot be placed on proper headgear. The modern lightweight headgear is effective but does little good if the suspension apparatus is not properly placed to keep the head from contact with the inside of the headgear. Once good equipment is supplied, the trainer and coach should insist that in order to compete, the players wear the equipment which has been prepared for them. Furthermore, at least a weekly check of each player's equipment should be made by the trainer for loose suspension, misplaced pads, or broken equipment which may result in a disabling injury for the rest of the season.

5. Protective strapping is a controversial but in many cases helpful supplement that the athletic trainer can provide to protect the athlete and prevent further injury. In all such instances, careful consideration of all factors and medical consultation are necessary before proceeding to strap an injured athlete to enter competition before complete healing has occurred. It is, however, necessary in fielding a present-day football team to do a great deal of protective taping. Every trainer, doctor, and coach has his own methods, but whatever the technique, the following principles should apply:

RULES FOR APPLYING BANDAGES:

- (1) Be neat, clean, and thorough.
- (2) Use the simplest method of application to accomplish the desired result.
- (3) Start the bandage with the limb placed in the position which it is to remain throughout the wrapping.
- (4) Anchor the bandage well, preferably at an angle to the wrap.
- (5) Start at the lower part of the limb and bandage toward the body.
- (6) Bandage snugly but not tight enough to be constrictive.
- (7) Before applying adhesive tape, shave the part carefully and apply a tape adherent to the skin.
- (8) Select the size and type of tape that best fits the contour of the injured area. The tape should be directly pulled from the roll



Figure 1.

without wrinkles, which may cause blistering of the skin beneath.

- (9) Circular constrictive taping, of course, should be avoided and the tape should be replaced frequently.

At the University of Arkansas, each member of the football squad must have his ankles either taped or wrapped before each practice session or game. Previous injury is an indication for taping, but since adapting the Auburn method of a stretching-strengthening program of the hindfoot, severe sprains have been much less numerous. The wrap used for the ankle at the University is demonstrated in Figure 2.

6. Finally, the trainer should at all times be cognizant of the physical and psychological condition of the athletes under his care, both in and out of competition. A surprisingly large amount of counseling is required in this role as well as instruction regarding adequate rest, nutrition, and exercise. Counseling must be coupled with compassion—the ability to feel pity for the injured athlete or distress of others with a real desire to help alleviate such suffering. Empathy combined with compassion for those under the trainer's care are qualities that the competent trainer must possess. Athletes often have emotional problems that require understanding, sympathy, and tact on the part of the trainer. At times, in fact, he func-

tions in lieu of the parent and must act as both a father and confessor attempting to help the athlete solve his problems.

7. The personal qualities of a trainer, not the facilities and equipment, determine his success. Personal qualities, of course, are complex but they form the image by which the athlete so closely associates his athletic competition memories. The ethics of the trainer promote honesty and fairness both in his relationship with the athlete and subsequently in the athletic endeavor. The trainer is in a unique position to build confidence by convincing a player that if he is in top physical condition, uses the equipment properly, and follows coaching instructions precisely, it is very unlikely that he will be injured.

THE NEED FOR ATHLETIC TRAINERS

The State of Arkansas has a serious deficit in athletic trainers at the high school level, whereas nearly all Triple-A sized schools or above in the State of Texas and many other surrounding states employ full-time athletic trainers. Arkansas high schools have essentially none at this level. Despite the above figures of injuries and importance of a good training program, it is extremely difficult to



Figure 2.

obtain a salaried position for a certified high school trainer. School boards are occupied with financial distress in most instances, and introduction of a new program or a new concept frequently meets with resistance because of the finances involved. Solution to this problem appears to be in certifying trainers in dual areas, such as English or mathematics, where they could more easily fit into the high school faculty, or by introducing the concept of full-time high school trainers by encouraging the State Department of Education rather than the individual school board. This was done in Arizona with moderately good success.

QUALIFICATIONS OF A TRAINER

Educational preparation of a trainer is of increasing importance, with the demand for trainers who are highly educated and qualified in all phases of the field. Today the trainer is expected to be a college graduate, usually with a major in physical education and an emphasis in the area of rehabilitation, or a major in physical therapy. The National Athletic Trainers' Association, since 1969, has provided leadership and guidelines in the area of professional preparation. There are approved undergraduate curricula in 48 universities in 26 states that offer this certification, and currently 5 approved graduate programs exist. The second way to qualify as an athletic trainer is by apprenticeship, with approximately two years under the clinical experience of a certified athletic trainer. At the University of Arkansas, the apprentice's undergraduate major may be in any field, not restricted to physical education as it is in the approved undergraduate curricula. The NATA, however, has identified certain courses in the approved curriculum, including anatomy, physiology of exercise, kinesiology, and related courses. In these programs, professional preparation in athletic training and sports medicine is quite strong. In many cases, three or four years of experience as a student trainer is required. In addition, some trainers are certified physical therapists (CPT). Full-time trainers are usually added to the staff in colleges and junior colleges, whereas the coach generally doubles as a trainer at the high school level. There is no generalized licensing for athletic trainers in every state, although more states are requiring licensure in

recent years, with eligibility requirements stringent enough to assure quality people. Texas and Georgia are the only states presently requiring state licenses at this time.

National certification of athletic trainers came into being in 1969, and has done much for the profession. Although state licensure may have some negative aspects to it, it most likely will do much to promote the respect of the profession. Licensure would allow the employing facility to have reasonable grounds to believe that the person they employ is qualified, as well as to help protect them legally and morally.

SUMMARY

It is encouraging to note that there are fewer serious injuries annually under properly monitored programs, and that for each football fatality, a comparison with other known accident information shows football to be much safer than other activities. For example, a recent survey showed 236.5 deaths by motor vehicles to 1 in football; 337 deaths from drowning accidents to 1 in football; and 241 deaths from firearm accidents to 1 in football. This improvement can be explained in part by the fact that there are more qualified men in the field of conditioning in recent years, that better equipment has been designed and is being used, and that everyone is becoming increasingly concerned about the prevention of injuries.

It has been said that in the past coaches were concerned about getting a team on the field, but now they are vitally interested in keeping a team on the field. An adequate athletic training program is one of the best means to accomplish this end. There is no doubt that the trainer has come a long way in recent years and today he is an important factor in the running of a college or school athletic program.

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Premarital Serological Examination

Robert T. Howell, Dr. P.H.*

The Premarital Examination Act (120 of 1953) requires that the Hygienic Laboratory (now the Division of Public Health Laboratories) perform serological tests on persons applying for marriage licenses and authorizes the State laboratory to certify other laboratories in the State to perform this test. Certification requires that the laboratory meet certain standards as to the director of the laboratory (the person responsible for the accuracy of the tests made), the facilities, the equipment, the reagents used, and the performance of a standardized (and approved by the State Board of Health) serological test for syphilis. There are, at this time, 120 laboratories approved for premarital and prenatal syphilis serology testing.

Laboratories wishing to be approved or certified must file an application with the Division of Public Health Laboratories, participate successfully in at least three series of the monthly proficiency tests performed on ten sera, and permit an on-site inspection of the laboratory by a representation of the State laboratory, including an on-site examination of ten additional sera. Certified laboratories are required to keep records on laboratory tests performed for a minimum of five years, send duplicate laboratory results to the State laboratory, send results of reactive tests to the Division of Communicable Disease Control, Arkansas Department of Health, and furnish an annual report on all serological tests for syphilis performed, plus continuing in the State proficiency testing program with an acceptable grade. Laboratories must run 250 tests per year excluding proficiency test samples, to stay in the program.

According to information furnished by them, 269,933 serological tests for syphilis were per-

formed by the approved laboratories in Arkansas during the past fiscal year (July 1, 1976 to June 30, 1977). These, plus 115,190 tests run at the State laboratory, plus 1,626 tests performed out of state on persons planning to marry in Arkansas, make a total of 386,749 tests for syphilis. This does not even consider those tests made at laboratories not seeking or being approved to participate in the premarital program. Of this number of serologies, 52,511 were tests needed for application for a marriage license. Table No. I, below, gives some further information on the premarital specimens.

It has already been mentioned that each approved or certified laboratory must participate in the Department of Health proficiency testing program for syphilis serology. Each laboratory is

Table No. I
Results of Premarital Syphilis Serology
Examinations — FY 1977

	Reactive	Weakly reactive	Non-reactive	Unsat.	Total
Approved Laboratories (0.4%)	134 (0.2%)	78 (0.2%)	35070	101	35383
Out-of-State Laboratories (0.4%)	7 (—)	1	1618	7	1633
Div. of P. H. Laboratories (0.8%)	123 (0.9%)	142	15333	344	15942
TOTAL	246	221	52021	452	52958

Table No. II
Results of Laboratory Proficiency Tests —
FY 1977

Grade (%)	Number of Laboratories	Percent
100	3	2.4
98.0 - 99.9	34	27.2
95.0 - 97.9	50	40.0
90.0 - 94.9	35	28.0
85.0 - 89.9	3	2.4
TOTAL	125	100.0

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sent ten sera per month for a total of 100 (July and December are skipped due to shipping problems). Participating laboratories score very well, judged on agreement with reference laboratories,

in this program. In FY 1977, three laboratories scored 100% agreement. The other laboratory scores are given in Table II, but all scored above 85% agreement, the minimum passing score.



EDITORIAL

Coronary Artery Surgery

Alfred Kahn, Jr., M.D.

The jury is still out on medical versus surgical treatment of coronary artery disease. It is a particularly difficult decision for the practicing physician. It seems apparent that there is general agreement that left main coronary artery disease presenting as stable angina pectoris is worthy of operative intervention; it is said not alone to afford symptomatic relief but to extend life expectancy. Takaro, et al., reported on the V.A. Cooperative Randomized Study of Surgery for Coronary Artery Disease in Supplement No. III of *Circulation*, Volume 54, page 107, December 1976. They reviewed 113 patients with angina pectoris and a significant left main coronary lesion. Fifty-three patients received medical treatment and 60 patients received surgical treatment. At the date of writing about 30 months follow-up had been obtained. It was found that 12 of 60 surgical cases died in the follow-up period. Nineteen of 53 medically treated patients died in the follow-up period. The age of the two groups were about the same, 52 years vs. 54 years. Takaro also states that a higher survival rate was noted with the surgical treatment of cases with three vessel disease plus some abnormality of the left ventricular function than with medically treated cases.

The general topic of the treatment of chronic stable angina has been reviewed by Murphy,

Hultgren, Detre, Thomsen, and Takaro (*New England Journal of Medicine*, Volume 297, page 621, September 22, 1977). Their emphasis was to report on survival data pertaining to chronic stable angina pectoris based on Randomized Veterans Administration Cooperative Study. The authors excluded left main coronary artery cases. They studied a total of 596 patients; 310 medically treated and 286 surgically treated patients. It is of extreme interest and importance that there was no significant benefit in treating patients surgically; the medically treated cases did just as well from a mortality point-of-view in 36 months follow-up study; surviving were 87% of the medical group and 88% of the surgical group. An interesting finding Murphy, et al's review concerns ventricular arrhythmias, which is a major additional risk factor. There was no significant difference in medically treated cases as compared to surgical cases.

In the same issue of *The New England Journal of Medicine* (Volume 297, page 661, September 22, 1977), is an editorial by Dr. Eugent Braunwald, an eminent cardiac research physician, entitled "Coronary-Artery Surgery at The Cross-Roads." He points out that initially coronary artery by-pass surgery was used for patients with incapacitating angina pectoris which responded poorly to medical treatment; he feels that there

can be no argument about this—it was aimed at relieving symptoms. By-pass surgery is now performed for other cardiac disorders as unstable angina pectoris, healed myocardial infarction, and even asymptomatic coronary disease. These latter operations thus are not to alleviate symptoms—they seem to indicate a desire to extend life expectancy by surgery. Braunswald states that some of the initial reports on by-pass surgery indicated extended life expectancy in randomized groups categorized as one vessel, two vessel and three vessel disease; later non-randomized studies reflected the contention that surgery extended life expectancy except in severe obstructive disease of the left main coronary artery. Braunswald concurs in the Murphy et al. conclusions cited above. He feels that beta adrenergic blockade drugs excellent results in coronary artery patients tend to reinforce this view. Braunswald states that probably 70,000 by-pass operations will be performed in 1977 and this represents a tremendous medical expense if the average case costs \$12,000. He urges

long term follow-up evaluations to determine unequivocally the value of medical vs. surgical treatment of coronary artery by-pass surgery in extending life—not relieving symptoms.

Apropos of the tumult concerning coronary artery surgery is the continuing welter and interpretation of stress testing the heart. One of the most excellent recent reviews is by Fortuin and Weiss (*Circulation*, Volume 56, page 699, November 1977). The physiologic basis of the S-T segment changes is not only illustrated but discussed in detail. Of interest is a discussion of other factors in addition to myocardial ischemia that influence the S-T segment changes in response to exercise; they include valvular heart disease, high blood pressure, pericardial disease; some drugs have implicated including Digoxin, hypotensives, diuretics, etc. False positive tests are often seen in women, the authors recommend technical means of value in identifying "false positives." Propranolol is useful in this sorting out process.



MEDICINE IN THE



THE MONTH IN WASHINGTON

With the exception of a few high-priority items, Congress has finished its business for this year. Still to be completed this session are boosts in Social Security taxes, the Administration's energy bill, and the Health, Education and Welfare Department appropriation bill. A few other measures might make it through during the bob-tailed, every-three-days work schedule. Most hearings are over. Most Congressmen have gone home.

Among the health measures definitely put off until next year are the Administration's disputed hospital cost containment plan, the clinical laboratories bill extending federal authority, and a revision of the Nation's drug laws.

One of the final bills approved by the lawmakers during their regular session was an 18-

month postponement of the proposed ban on saccharin by the Food and Drug Administration. Under the legislation, saccharin products must bear labels warning that the product has caused cancer in test animals.

Another last-minute approval was for a one-year extension of the special pay provisions for Veterans Administration physicians.

The conference report on legislation to help rural health clinics by allowing Medicare and Medicaid reimbursement for physician extender services was hung up for most of the month, but finally approved by both Houses—thus clearing it for the President's signature.

In a somewhat unexpected action, House and Senate conferees reached last-minute agreement on the controversial medical school capitation *quid pro quo* for admission of foreign-trained

U. S. students. The compromise will repeal that condition after one year, but require a 5 percent increase in third-year enrollment in the meantime.

The impasse between House and Senate over language dealing with Medicaid abortion funding has dragged on for months. There was no resolution by the end of the regular session, forcing Congress to approve a temporary funding resolution to keep the HEW and Labor Departments going. The House wants to forbid use of Medicaid funds for abortions unless necessary to save the mother's life. The Senate wants broader language allowing abortions, for example, where "severe and long-lasting physical health damage" to the mother would result and for victims of rape and incest. An emotion-laden, bitter controversy pitting the right-to-life forces against the pro-abortion forces has enveloped the House and Senate for months.

The major reason for the odd recess arrangement is the lengthy hassle over President Carter's sweeping energy program.

Unlike an election year when a new Congress convenes, the second session of the same Congress merely takes up where it left off. There is no need to reintroduce bills and start all over again.

* * * *

The American Medical Association, the American Hospital Association, and the Federation of American Hospitals have accepted an unusual challenge from Congress and agreed to develop a voluntary hospital and health care cost containment program.

The challenge was posed by Rep. Dan Rostenkowski (D-Ill.), Chairman of the House Ways and Means Subcommittee on Health. In a House speech, the lawmaker conceded that Congress would not be able to resume deliberations on the Administration's controversial cost containment proposal until next February.

During this brief grace period, he said, the three major provider organizations should take the initiative "and effectively and significantly restrain cost increases on a voluntary basis."

Government intervention and the imposition of controls "should be a last resort," asserted Rostenkowski, raising the possibility that the Administration's plan for a nine percent "CAP" on hospital revenue increases might be in deep trouble if the private sector satisfies the lawmakers in the interim.

James H. Sammons, M.D., Executive Vice Pres-

ident of the AMA; President John Alexander McMahon of the AHA; and Director Michael Bromberg of the FAH made the following joint statement:

"Our three organizations, at the instruction of our respective officers, are beginning now to organize a national steering committee of hospital people, doctors, insurers, consumers and others with a major stake in hospital cost containment. We will ask this committee, which we expect to have its first meeting within the next several weeks, to develop the goals and mechanisms, first, of a voluntary program to reduce the rate of increase in hospital costs, and, second, of a voluntary program to reduce the rate of increase in health care costs as a whole. We will also encourage the development of similar steering committees at the state level to help implement these programs."

Later it was announced that the national steering committee will meet in December to draft guidelines to restrain hospital cost increases.

"The primary enforcing power in the program will be public accountability, said Director Michael Bromberg of the FAH. The AMA and the AHA have launched a voluntary program in hopes of averting a federal "CAP" on hospital revenues. Bromberg told the Washington Business Group on Health that hospitals "that fail to meet the screening criteria will be listed periodically. The review and findings of industry committees at the state level, as to the justification for each hospital's exceeding the screen, will be made public."

Bromberg said the anticipated publicity attendant on any hospital which fails to stay within the screen and the public exposure of the reasons why is expected to provide a substantial incentive to a hospital to restrain its charge increases.

The FAH leader emphasized his belief in the private sector's ability to devise a workable alternative to an "arbitrary CAP" and to engage in voluntary enforcement of such a plan.

"If we fail," he said, "then government will take even more control of the health system. If we don't bite the bullet, government will assume management responsibilities from health providers, insurers and industry. The result will be more inflation and less quality."

* * * *

The federal government plans a major campaign to urge the American public to seek opinions on surgery.

The unusual and precedent-setting program involving patients' dealings with physicians will be conducted by the HEW Department. Both Medicare and Medicaid programs will be geared to encourage second opinions.

The policy was announced by Hale Champion, HEW Under Secretary, before the House Commerce Subcommittee on Oversight and Investigations. The subcommittee, headed by Rep. John Moss (D-Calif.), has been holding hearings this year and issuing reports charging there is much unnecessary surgery in the United States.

Champion told Moss "you have been right."

"Comparisons with prepaid delivery, geographic variations in rates of surgery, and historical trends all point to the fact that there is more surgery in the United States today than there ought to be," said Champion.

"Accordingly, we are going to begin a major effort to encourage the American public, and especially our own beneficiaries, immediately to seek second opinions," he testified.

The Department has been instructed to remove the remaining legal barriers to patient-elected second opinions in Medicare. States will be requested to implement as quickly as possible active second opinion programs for Medicaid.

If two physicians disagree, Medicare will pay for a third opinion if the patient desires one, according to HEW.

At present Medicare will pay for a second surgical opinion if the physician agrees to the advisory or orders it. But the physician's acceptance is at present mandatory. In the future the patient would be reimbursed for a second opinion if the initial physician believes it unnecessary.

One question to be answered is whether the patient must receive a negative response on a second opinion from the first physician, or simply could go off on his own to get a second opinion without even asking the physician.

Champion also told the Moss Subcommittee he will ask professional standards review organizations (PSROs) "to move aggressively into review of surgical services."

Champion said that with the advice of the National PSRO Council, "We're going to develop criteria for ten of the most common surgical procedures and distribute them to the PSRO's by this February." By January 1979, criteria for 75 percent of the most common surgical procedures within each specialty will be prepared, he said.

"We will do our best to see that these criteria

are specific and measurable, and applied without unreasonable modification by the local PSROs," the official told the Subcommittee.

* * * *

Rep. Tim Lee Carter, M.D., (R-Ky.) has introduced legislation sought by the AMA dealing with funding for residencies in preventive medicine and labelling of prescription drug containers.

The labelling bill would require that drug containers as dispensed to patients carry the established or trade name together with the quantity and strength of the drug. The AMA said that in cases of medical emergency it is often important for attending medical personnel to know the name, strength and contents of any drugs a patient is taking.

Under the bill introduced by Dr. Carter, ranking GOP member of the House Commerce Subcommittee on Health, an exception to the labelling is provided when the physician decides that for medical or emotional reasons it is in the best interest of the patient that the information not be made known to him or indirectly to the patient's family or associates.

The other bill introduced by Rep. Carter calls for an amendment to the Health Manpower Law to provide funding for residencies in preventive medicine. Specific program funding for such residencies was not included in the Health Manpower Law as passed.

The AMA said these residency programs are very dependent on outside funding because they generate little patient income to support their activities. The increased focus on preventive medical care makes it important that these residency programs continue, according to the AMA. The bill would provide federal funds for approved residency programs in preventive medicine and would also provide traineeships for those physicians participating.

* * * *

The AMA has recommended that the Administration propose increased funding for programs emphasizing preventive health care and promote cost effective delivery of services.

More federal funds were sought for venereal disease control, migrant and Indian health care, family planning and immunization programs for diseases such as polio and measles, prevention and treatment of mental disorders and alcoholism.

In a letter to the White House Office of Management and Budget, the AMA asked that its recommendations be incorporated into President

Carter's fiscal 1979 budget slated to be sent to Congress early next year.

Largest recommended increase was \$250 million for National Institutes of Health disease and injury research and treatment programs. The AMA also asked increases for services to older Americans, for prevention and treatment of mental disorders, for health services to mothers and children, for health care for Indians, and for alcoholism.

* * * *

President Carter has signed into law good news for medical students on federal scholarships. Their stipends will now be freed from federal income taxation.

The exemption applies both to Armed Services health professions scholarships as well as the Public Health Service's National Health Service Corps scholarship program. Some 10,000 medical students get a break as a result.

The exemption had been urged by the AMA and was spearheaded through Congress by Sen. Robert Dole (R-Kans.) and Rep. James Jones (D-Okla.). Rep. Tim Lee Carter (R-Ky.) strongly supported the legislation that was also introduced by Rep. Martha Keys (D-Kans.).

* * * *

There are no big differences between generic and brand drugs according to the Commissioner of the Food and Drug Administration Donald Kennedy, PhD. Dr. Kennedy told the Senate Monopoly Subcommittee that some of the larger pharmaceutical houses frequently buy products from smaller generic producers and sell them under the larger firm's brand name.

"Drug marketing follows many patterns," Dr. Kennedy said. "A formulator may make a product, and sell it only under his own label; he may also have a trade name and a generic line selling it both ways. He may also sell this product to other drug firms; or have them make the product for him. So a formulator may also be a repacker, or an own-label distributor at different times under different circumstances. To give an idea of the number of firms producing drugs, ampicillin, a widely used antibiotic, available under 224 product labels, is produced by only 24 formulators; 219 conjugated estrogen products are produced by 45 manufacturers."

Dr. Kennedy said that drug firms frequently lease the facilities of different firms for the manu-

facture of various products which may still be marketed under a brand name.

The Commissioner told Senator Gaylord Nelson (D-Wis.), that evidence from the FDA's 250,000 annual drug inspections shows that "only a small percentage of drugs are not in compliance with compendial or application specifications . . . we also find no evidence of widespread differences between the products of large and small firms or between brand name and generic products."

* * * *

The Carter Administration's new-found love affair with health maintenance organizations (HMOs), an old flame of the Nixon Administration—is flourishing.

HEW Secretary Joseph Califano is inviting 500 large corporation representatives to Washington, D. C., Feb. 7 to make a pitch for their establishment of HMOs for their employees to replace fee-for-service, regular health insurance plans.

He made the announcement at a ceremony in New York City certifying the huge, 3.25 million-member Kaiser-Permanente prepaid health plan as an HMO. As a result, Kaiser becomes eligible for certain federal loans and loan guarantees and has an easier job dealing with Medicare and Medicaid contracts with the government.

In addition to meeting with corporations, Califano is expected to sit down with labor leaders to urge them to push HMOs in conjunction with the management effort.

In the drive to promote establishment of the prepaid plans, Califano said HEW has cut qualification time for new HMOs by almost 40 percent by assigning extra staff and streamlining the paper work.

* * * *

Total national health expenditures including government contributions, were 20 percent greater per capita for the more affluent than for the poor, and almost 60 percent greater for whites than for racial minorities, a government report says.

Per capita health care expenditures averaged \$258 for a white individual, \$162 for a minority, \$265 for a person above the poverty line, and \$213 for a poor person according to a HEW study.

The report also shows higher mortality rates in large city poverty areas among minorities than among whites, and higher levels of disability among the poor.

Racial minorities, which comprise more than 40 percent of the Nation's poor, the report said, suffer five times the tuberculosis mortality rate than white Americans do, three-and-a-half times the maternal, and a 42 percent greater overall mortality rate.

The data also show the impact of Medicare and Medicaid: The number of physician visits increased more for the poor and minorities than for others between 1964 and 1973. By 1973 the poor had more doctor visits than the nonpoor. Poor whites averaged 5.7 visits per person per year (4.7 in 1964), while poor minorities averaged 5.0 (3.1 in 1964). Nonpoor whites averaged 5.0 visits in 1973 (4.7 in 1964), and nonpoor minorities 4.3 (3.6 in 1964).

* * * *

The FDA Commissioner has stung health food advocates in an interview in "U. S. News & World Report." In reply to a question if health foods due to the absence of food additives are safer than regular supermarket products, Donald Kennedy, PhD., replied:

"There's not a wit of logic in that. Even if you assume that food additives are generally bad for you, it doesn't follow that their absence somehow confers safety.

"Aflatoxin, a mold product that grows on corn and peanuts, is as natural as can be and about the worst carcinogen we know," the Commissioner said.

"The 'natural' foods often cost more, but have no benefit that we can see over foods available in the regular market place."

* * * *

REGULATIONS GOVERNING PHYSICIAN'S TRAINED ASSISTANTS

1. A Physician's Trained Assistant must possess a certificate issued by the Arkansas State Medical Board prior to engaging in such occupation.

2. A Physician's Trained Assistant must be a skilled person, qualified by academic and clinical training, to provide patient services under the supervision and responsibility of a physician. The physician employing the Physician's Trained Assistant shall be responsible for the performance of the Physician's Trained Assistant.

3. The work of the Physician's Trained Assistant shall be done under the supervision of a physician who retains responsibility for patient

care, although the physician need not be physically present at each activity of the assistant nor be specifically consulted before each delegated task is performed. The Physician's Trained Assistant may be involved with the patients of the physician in any medical setting within the established scope of the physician's practice, not prohibited by law. The Physician's Trained Assistant's service may be utilized in all medical care settings, including the office, the ambulatory clinic, the hospital if approved by the hospital medical staff and Board of Directors of the hospital, the patient's home, extended care facilities and nursing homes. Diagnostic and therapeutic procedures common to the physician's practice may be assigned after demonstration of proficiency and competency is made by the Physician's Trained Assistant.

4. The Physician's Trained Assistant certificates shall only be issued by the Arkansas State Medical Board upon application by both the employing physician and the Physician's Trained Assistant.

(a) The physician's application shall disclose the professional background, specialty, and scope of practice of the physician, a description of the physician's practice and the way in which the assistant is to be utilized, and such other information as the Board may require. The physician's application shall also list the names of any and all physicians to whom the Physician's Trained Assistant shall be responsible in the absence of the employing physician.

(b) The Physician's Trained Assistant's application shall disclose the qualifications, including the related experience possessed by the Physician's Trained Assistant, and such other information as the Board may require.

5. All applicants for Physician's Trained Assistant certificates shall meet the following qualifications:

(a) Have successfully passed an examination for Physician's Assistants prepared by the National Board of Medical Examiners and certified by the National Commission on Certification of Physician Assistants; and

(b) Have successfully completed a course

of study in a curriculum for training of Physician Assistants offered by a school or institution accredited by the Council on Medical Education of the American Medical Association or possess a current license as a Registered Nurse or Licensed Practical Nurse issued by the Arkansas State Board of Nursing; and

- (c) Have successfully completed a one year program of practical training of Physician's Trained Assistants established by an approved hospital which program shall have been approved by the Arkansas State Medical Board.

6. A Physician's Trained Assistant employed in an academic position in an institution devoted to the health sciences shall be the responsibility of and responsible to the dean physician or his physician designate of the appropriate college or university.

7. All educational and/or experimental programs for Physician's Trained Assistants operating beyond the physical confines of educational institutions in the medical sciences shall obtain approval of the Arkansas State Medical Board before initiating such programs. Applications for approval shall:

- (a) Identify all personnel (student, instructor, physician, etc.) involved;
- (b) Specify the locations, facilities, content, and purpose of such program;
- (c) Furnish job descriptions and duration of program; and
- (d) Other information as the Board may require.

8. The Board shall not approve an application for any one physician to supervise more than two Physician's Trained Assistants at any one time.

9. Certificates of a Physician's Trained Assistant shall not be transferable to a different employing physician, except by proper application and approval of the Arkansas State Medical Board. The certificate shall be displayed prominently at the assistant's office of employment and shall bear a seal issued by the Board indicating approval for the current year.

10. Physician's Trained Assistants may perform routine visual screening, pre-operative or post-operative care or assistance in the care of

diseases of the eye as done under the supervision of a physician.

11. A registry of the qualifications of the Physician's Trained Assistant and the employing physician shall be kept in the office of the Arkansas State Medical Board.

12. Initial certification shall be for one year and renewed annually on that anniversary date. Recertification and review of the Physician's Trained Assistant, the employing physician and his practice shall be made prior to renewal of the certificate.

13. A fee of Fifty Dollars (\$50.00) shall be charged for each initial certification as a Physician's Trained Assistant. Annual renewal fees, not to exceed Two Dollars (\$2.00) per annum, shall be determined by the Board. The physician employer shall pay Fifty Dollars (\$50.00) for the initial application but shall not be charged for annual renewals. Additional charges will be made for examination.

14. A Physician's Trained Assistant must:

- (a) Clearly identify himself to the public and the patient as an assistant to a physician by the display of an appropriate designation, i.e., badge, nameplate, with "Physician's Trained Assistant" appearing thereon.
- (b) Function only under the direct supervision of a licensed physician. Independent health care by a Physician's Trained Assistant shall not be permitted.
- (c) Be prepared to demonstrate, at the request of the Board, satisfactory ability to perform those tasks assigned to him by his employer-physician.
- (d) Pay such fees as are required by the Board for expenses incurred in the evaluation of his qualifications and his continuing performance.

15. The supervising physician shall sign all prescriptions.

16. All bills or statements for fees rendered by the Physician's Trained Assistant shall be in the name of the supervising physician. The supervising physician and the Physician's Trained Assistant may enter into such an agreement as they consider just respecting the accounting by Physician's Trained Assistants for cash fees collected by the Physician's Trained Assistant. The Physician's Trained Assistant must obtain and

have in force at all times a malpractice insurance policy issued by an insurance company approved by the Department of Insurance of the State of Arkansas in the minimum amount of Ten Thousand Dollars (\$10,000.00).

17. The Board may revoke or suspend an existing certificate issued to a Physician's Trained Assistant or may refuse to issue a certificate in the event the holder thereof or the applicant therefor has committed any of the acts or offenses described in *Ark. Stat. Ann.* §72-613 or the Regulations of the Board as unprofessional conduct. Procedure in all disciplinary matters shall be as provided by *Ark. Stat. Ann.* §72-614.

* * * *

REGULATIONS GOVERNING THE PHYSICIAN'S TRAINED ASSISTANT TO THE GENERAL PRACTITIONER

The P.T.A. to the general or primary care practitioner including the family practitioner may perform the following tasks and procedures:

1. Receiving patients, obtaining case histories, performing an appropriate physical examination, and presenting meaningful resulting data to the physician;
2. Performing or assisting in laboratory procedures and related studies in the practice setting;
3. Giving injections and immunizations when the supervising physician is on the premises or immediately available.
4. Suturing and caring for superficial wounds not involving the muscles, nerves, tendons, joints or face unless first viewed by the supervising physician.
5. Providing patient counseling services; referring patients to other health care resources;
6. Responding to emergency situations which arise in the physician's absence within the assistant's range of skills and experience; and,
7. Assisting the employing physician in all settings such as the office, hospitals, if approved by the medical staff and Board of Directors of the hospital; extended care facilities, nursing homes, and the patient's home.

Adopted by the Arkansas State Medical Board December 7, 1977.

* * * *

SCHOLARSHIP ESTABLISHED

A \$25,000 scholarship has been established at Hendrix College in Conway by Dr. and Mrs.

Milton C. John, Jr., of Stuttgart. The endowed fund is for students enrolled in pre-medical curriculum at Hendrix. Dr. John is a 1929 graduate of Hendrix and a 1933 graduate of the University of Arkansas School of Medicine.

ADMISSIONS COMMITTEE APPOINTED

Fifteen persons have been appointed to the Admissions Committee for the University of Arkansas College of Medicine. The committee will screen applicants for admission to the College in the fall of 1978.

The appointees are: Dr. Harold H. Hedges, Little Rock, chairman; Dr. Galen L. Barbour, Dr. Herman F. Flanigin, Dr. Y. Phay Hubbard, Dr. Betty A. Lowe, Dr. W. Grady Smith, Dr. James N. Pasley, Dr. R. Sloan Wilson, Dr. Kelsy J. Caplinger, all of Little Rock; Alan G. Patteson of Jonesboro; Dr. W. W. Workman of Blytheville; Mrs. Ander K. Orr of Fort Smith; Dr. John P. Wood of Mena; Dr. Robert J. Smith of Pine Bluff, and Dr. Paul Wallick of Monticello.

WEST ARKANSAS HEALTH SYSTEMS AGENCY

Dr. Max Baker of Fort Smith has been named chairman of the Institute Health Services Review Committee of the Western Subarea Advisory Council of the West Arkansas Health Systems Agency. Mrs. Kemal Kutait, President of the Arkansas Medical Society Auxiliary, has been named chairman of the organization's Plan Development and Implementation Committee.

ELECTRONIC TONOMETER DESIGNED

The Arkansas Graduate Institute of Technology in Little Rock, at the request of the University of Arkansas College of Medicine, has designed an electronic tonometer for use in measuring the firmness of tissue. Plastic surgeons at the University of Arkansas College of Medicine are using the tonometer to determine the flexibility of breast implant materials.

COMMITTEE APPOINTED BY GOVERNOR

A committee to study ways of lowering the State's death and disability rates of mothers and newborn babies has been appointed by Governor David Pryor. Dr. Betty A. Lowe of Little Rock was appointed chairman of the Governor's Special Committee on Maternity-Newborn Care. Other committee members are Drs. James Patrick of Fayetteville, W. P. Phillips of Fort Smith, W. W. Workman of Blytheville, and G. Max Thorn of Little Rock.



PERSONAL AND NEWS ITEMS

DR. SMITH SPEAKER

Dr. Thomas Smith of Little Rock recently spoke at a Continuing Medical Education program for physicians at St. Joseph's Mercy Medical Center in Hot Springs. He discussed various gastroenterology procedures.

DR. FERGUS TO OSCEOLA

Dr. Scott Fergus recently began the practice of surgery in Osceola. His office is located in the Professional Building. Dr. Fergus is a 1971 graduate of the University of Arkansas College of Medicine.

DR. KRAMER ELECTED TO BOARD

Dr. Ralph G. Kramer was recently elected to the board of directors of the Superior Federal Savings and Loan Association in Fort Smith.

LAKE VILLAGE GAINS PHYSICIAN

Dr. Ashok R. Parmar, a Family Practitioner and General Surgeon, recently located in Lake Village. Dr. Parmar previously practiced in Atlanta, Georgia.

DR. MAGNESS RELOCATES

Dr. Jack L. Magness recently completed residency training in Dermatology at the University of Oklahoma, and is now associated with the Cooper Clinic in Fort Smith.

DR. VERSER MADE FELLOW

Dr. Joe Verser of Harrisburg has been elected a Fellow of the American College of Physicians.

DR. HEDGES APPOINTED

Dr. Harold H. Hedges of Little Rock has been elected chief of staff at St. Vincent Infirmary. Dr. Hedges is assistant clinical professor of the Family Practice Department at the University of Arkansas College of Medicine.

DR. DODGE RECEIVES AWARD

Dr. Eva Dodge of Little Rock received the Elizabeth Blackwell Award of the American Medical Women's Association for "pioneering contributions" to public health education, clinical medicine, and family counseling. The presentation was made at a recent meeting in Denver.

DR. MASSEY ELECTED

Dr. James Y. Massey of Mountain Home was

elected chief of staff at Baxter General Hospital in Mountain Home.

ASSOCIATION ANNOUNCED

Drs. C. E. Ransom, Jr., and C. W. Koch, Jr., have announced the association of Dr. Bob W. Smith. The group serves both the Ransom-Koch Clinic in Searcy and the Bald Knob Medical Center.

DR. BRUCE SPEAKER

Dr. Thomas Bruce, Dean of the University of Arkansas College of Medicine, was a recent speaker at the Kellogg Lecture Series at the University of Arkansas in Pine Bluff. Dr. Bruce discussed physician distribution.

JEFFERSON COUNTY MEDICAL SOCIETY

Dr. J. Wayne Buckley has been elected president of the Jefferson County Medical Society for 1978. Other new officers for the year are Dr. C. M. Rittelmeyer, vice president; and Dr. Robert R. Gullett, secretary-treasurer. Drs. Banks Blackwell, Lloyd G. Langston, and George Roberson were named delegates.

DR. ANDERSON HONORED

A reception in honor of Dr. P. R. Anderson was recently held in Arkadelphia. He was presented with a plaque on behalf of the Clark County Memorial Hospital. Dr. Anderson recently retired, after practicing in Arkadelphia for twenty-eight years.

DR. LILLY APPOINTED

Dr. Kenneth E. Lilly of Fort Smith has been appointed to the Chapter Affairs Committee of the American Academy of Family Physicians. The committee is charged with maintaining relations and promoting joint programs between the national headquarters of the Academy and its constituent chapters.

HOSPITAL OFFICERS ELECTED

Dr. Joe Verser of Harrisburg has been elected chief of staff of the Craighead Memorial Hospital in Jonesboro. Other officers elected were Dr. Ken Aston of Jonesboro, vice chief of staff; and Dr. Donald J. Kroe of Jonesboro, secretary.

DR. CLOPTON RE-ELECTED

Officers for St. Bernard's Regional Medical Center medical staff were recently elected. Dr.

O. H. Clopton was re-elected as chief of staff. Serving with him for 1978 will be Drs. William R. Eddington, vice chief of staff; B. E. McKee, secretary; Donald M. Berry, chief of obstetrics; W. T. Rainwater, chief of medicine; and John T. St. Clair, Jr., chief of surgery. Drs. A. C. Modelovsky and Robert O. Lawrence will serve on the executive committee.

NEW COUNTY SOCIETY OFFICERS

Dr. William N. Jones of Little Rock was recently installed as president of the Pulaski

County Medical Society. Other officers for the year are Dr. Paul J. Cornell, president-elect; Dr. Charles W. Logan, vice president; Dr. Harold D. Purdy, secretary; and Dr. Kelsy J. Caplinger, treasurer.

PHYSICIANS HONORED

The West Arkansas Health Systems Agency recently honored the charter members of their governing body. Among those honored were Drs. Jean C. Gladden, Harrison; A. S. Koenig, Fort Smith; and Robert McCrary, Hot Springs.



NEW MEMBERS

DR. DON I. SCOTT

Dr. Don I. Scott is a new member of the Pulaski County Medical Society. Dr. Scott is a native of Oklahoma City, Oklahoma. He received his pre-medical education at the University of Oklahoma in Norman, and in 1964, he was graduated from the University of Oklahoma School of Medicine in Oklahoma City. His internship was completed at St. John's Hospital in Tulsa, Oklahoma. Following his internship, Dr. Scott was in Internal Medicine residency training at Santa Clara Valley Medical Center, San Jose, California, for one year. He did his residency work in Pathology at the University of Arkansas College of Medicine (1968-1970) and the University of California in San Diego (1970-1972). Prior to locating in Arkansas, Dr. Scott was in practice at Alvarado Community Hospital in San Diego, California, and at Scripps Memorial Hospital in La Jolla, California.

He is board certified in Anatomic and Clinical Pathology by the American Board of Pathology. Dr. Scott is associated with St. Vincent Infirmary in Little Rock, where he specializes in Pathology.

He is Assistant Professor of Pathology at the University of Arkansas College of Medicine.

DR. ELEANOR THORNTON

Dr. Eleanor Thornton has been accepted as a new member of the Lee County Medical Society. Dr. Thornton was born in Chicago, Illinois, and received her pre-medical education at Northwestern University in Evanston, Illinois. She received her M. D. degree from Medizinische Fakultät Johannes Gutenberg Universität, Mainz, Rheinland-Platz, West Germany in 1964. Dr. Thornton served a rotating internship at St. Mary's Hospital in West Palm Beach, Florida, and continued there from March 1965 until August 1966 for residency training in Pediatrics and Internal Medicine. Dr. Thornton practiced pediatrics in West Palm Beach, Florida, for two and a half years. From 1969 until 1972, she was emergency room physician at the Good Samaritan Hospital in West Palm Beach. In 1972, Dr. Thornton received Internal Medicine residency training at Crawford Long Hospital in Atlanta, Georgia.

Since 1973, Dr. Thornton has been in the general practice of medicine at 100 Main Street in Marianna.

DR. LOUIS R. MUNOS

Dr. Louis R. Munos has been accepted into the membership of the Pulaski County Medical Society.

Dr. Munos was born in Little Rock and received his B.S.M. degree from Hendrix College in Conway in 1960. He was graduated from the University of Arkansas College of Medicine in 1964, and his internship was completed at Duval

Medical Center, University of Florida in Jacksonville. Dr. Munos practiced in Cherokee Village, Jonesboro, Morrilton, Bella Vista, and Newport prior to his three year Radiology residency at the University of Arkansas Medical Center, which he completed in 1977.

He is with the Department of Radiology at the University of Arkansas College of Medicine.

JAMES BOYD JONES, III

Mr. James B. Jones has been accepted into the membership of the Pulaski County Medical Society as a medical-student member. He is a native of Sherwood. Mr. Jones received his pre-medical education at the University of Arkansas and is a member of the freshman class at the University of Arkansas College of Medicine.

THINGS



TO
COME

CONTEMPORARY CLINICAL NEUROLOGY COURSE

The Department of Neurology at Vanderbilt University School of Medicine, Nashville, Tennessee, will present a postgraduate course, "Contemporary Clinical Neurology", on Hilton Head Island, South Carolina, at the Palmetto Dunes Hyatt Resort, on July 6-9, 1978.

The scientific sessions will be from 8:30 A.M. to 1:00 P.M. Topics covered will be Cerebrovascular Disease, Viral and Demyelinating Diseases, Movement Disorders, and Neuromuscular Disorders. The course is certified for 16 credit hours in Category I of the Physician's Recognition Award of the American Medical Association. Registration fee is \$200.

For further information and registration, contact Vanderbilt Continuing Education, 305 Medical Arts Building, Nashville, Tennessee 37212. Telephone 615-322-2716.



OBITUARY

DR. LAWRENCE LEE THOMPSON

Dr. Lawrence L. Thompson of Little Rock died December 24, 1977. He was born in Little Rock on September 19, 1919.

Dr. Thompson was a 1943 graduate of the University of Arkansas College of Medicine, and his internship was completed at Scott-White Hospital in Temple, Texas. He received residency training at Scott-White Hospital, Kennedy Veterans Administration Hospital in Memphis, and the University of Arkansas Medical Center in Little Rock. Dr. Thompson had been in practice in Little Rock since 1945. He was a member of the medical staff at Arkansas Children's Hospital for twenty years, and a member of the medical staff at the Missouri Pacific Hospital for twenty-five years. Dr. Thompson was chief of orthopedic evaluation for the Little Rock Veterans Administration Hospital and all armed services hospitals in Arkansas. He served with the State Crippled Children's Services, and he was an honorary professor of orthopedic surgery at the University of Arkansas College of Medicine. Dr. Thompson was a veteran of World War II and a retired colonel in the Arkansas National Guard.

He is survived by his wife, Jacquiline, one son, and three daughters.

DR. WILLIAM EDWARD HARVILLE

Dr. William Edward Harville died January 1, 1978, at the age of fifty-one. Dr. Harville was born in Crossett on July 25, 1926. He was gradu-

ANSWER—Electrocardiogram of the Month

The Hatter is abnormal. The underlying rhythm is sinus with first degree AV block. There is an episode of Mobitz II block noted. Frequent premature beats multifarm in a bigeminal pattern are noted. In Strip #2, ventricular tachycardia or junctional tachycardia with aberrancy is noted. (Note that beat #3 in the second strip is early and wider and has the same conduction as the rest of the tachycardia.) There is advanced AV retragrade block as sinus rhythm can be marched through the tachycardia. These findings are compatible with digitalis toxicity. The patient's digoxin level was 4.3 mg./ml. (nl. < 2).

OBITUARY

ated from the University of Arkansas School of Medicine in 1951 and interned at St. Louis City Hospital. He completed his residency training at Deaconess Hospital in Boston. He was a teaching fellow at Harvard University.

Dr. Harville was an associate clinical professor of pathology at the University of Arkansas College of Medicine. He was a member and counselor of the American Society of Clinical Path-

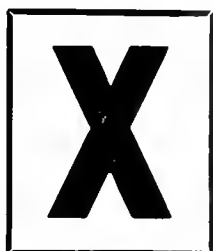
ologists, a member of the Arkansas Society of Pathology, the College of American Pathology, and the Alpha Omega Alpha Honorary Medical Society.

Dr. Harville was a former chairman of deacons at Immanuel Baptist Church and had served as president of the Chamber Music Society.

He is survived by his wife, Virginia, one son and two daughters.



WHATEVER YOUR POLITICS



VOTE ARK-PAC

A new political party?

Hardly. The Arkansas Medical Political Action Committee is a voluntary non-profit, unincorporated group whose membership is open to all physicians, their spouses, and other interested people.

Ark-Pac encourages its members to work actively for good government through the established political party of their choice, but Ark-Pac's material resources may be concentrated for the benefit of worthy candidates from either party, thus reinforcing our efforts toward the basic objective — electing the best possible public representation.

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On the Biology of Ultrasound*

Max L. Baker, Ph.D.**

INTRODUCTION

Ultrasound, as a tool in medical diagnosis, has seen a marked increase in use in recent months. The diagnostic value of ultrasound has been shown beyond question. However, the potential risks associated with these benefits are not so clear cut. Questions have been posed on the subject both from the physician and the general public. The purpose of this review is not so much to answer these questions, but simply to present some of the data from the literature. With this information, the physician may then better assess the risk/benefit situation associated with ultrasonic exposure.

As a brief review, ultrasound, as used diagnostically, operates in a manner similar to sonar systems of navigation. A sound wave is generated by a crystal and transmitted through a medium, in our case, water or a water-like medium such as tissue. The ultrasound wave is modified by the medium and returned to the transducer. The modified sound wave is then converted to an image, and displayed, usually on an oscilloscope.

Without getting into the physics, the term *ultrasound* is used to describe mechanical vibrations at frequencies above the human limit of audibility, i.e., about 16 kHz. Ultrasound can be generated and detected at frequencies up to at least several thousand megahertz, but in current medical practice, the range is generally about 900 kHz up to around 5 MHz. These frequencies correspond to wavelengths on the order of 0.15 to 1.5 mm. in tissue. Most diagnostic transducers are 1-2 cm. in diameter. The typical diagnostic ultrasound beam then is cylindrically shaped with a diameter of 1-2 cm., and is 15-20 cm. in length.

The sound wave may be generated continuously as in Doppler devices, and in the ultrasonic diathermy units used in physical therapy. However, most diagnostic units are pulse-echo type units. In these devices, a sound pulse is generated for a short time, usually a millisecond or less. Then the machine "listens" to the echoes for a time before the next pulse is generated. The duty cycle of the machine is such that sound is generated 0.01% of the time and received 99.99% of the time. These units produce time-averaged intensity levels of 5 to 20 milliwatts per square centimeter.* The instantaneous peak intensities of these instruments are 5 to 10 w/cm², though peak intensities as high as 100 w/cm² have been reported from commercial pulse-echo diagnostic instruments. The continuous wave Doppler fetal heart detection instruments produce a beam with an intensity of 10 to 30 mw/cm². The continuous wave treatment ultrasound beams used in physiotherapy operate at intensities of 100 to 150 mw/cm². The average transmission period for a scan with the pulse-echo device seems to be about five minutes, and the Doppler unit about two minutes. Physiotherapy units are routinely used for 5-10 minutes.

ULTRASOUND EQUIPMENT

A variety of ultrasound devices are finding a use in diagnostic medicine. The first of the units to gain wide usage was the echoencephalograph. This unit is used to check for midline changes in the brain. This is so-called "A-Mode" ultrasound. This device provides information describing depth and effect size of the reflecting surface. When depth is measured along the X-axis, signal information is shown along the Y-axis. Amplitude and shape of the received signal is proportional to the size of the object producing the reflection. (Note: There is no scanning motion in an A-Mode presentation.) The A-Mode echo-

*Presented as a part of the noon seminar series of the Little Rock Chapter of the Society of the Sigma Xi.

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*Intensity levels for ultrasonic devices are generally given in terms of power applied to the crystal. This is given in terms of watts (w) per unit of transducer area.

encephalogram is used primarily to detect shifts of midline brain structures.

The "B-Mode" ultrasound presentation provides depth and position information. Echo signals are converted from amplitude information to intensity or brightness modulated line segments of sweeps or dots. Depth below the surface is shown along one axis (usually the X-axis) and the position of the transducer is shown along the other axis. B-Mode scan presentation is achieved through lateral movement of the transducer. These machines have found wide usage in many areas, but are particularly used in obstetrics and gynecology.

The third commonly used presentation is the "TM-" or "M-Mode" presentation. This is also known as the Time-Motion scan. The equipment is set to operate in the B-Mode with the transducer stationary. The trace on the oscilloscope is caused to sweep electronically, thus providing information pertaining to the motion of a pulsating or oscillating subject, for example, cardiac motion.

The machines previously described are pulse-echo devices. Doppler ultrasound devices are used to measure flow velocity in vessels. These devices are commonly used as fetal heart monitors. The Doppler probe utilizes two crystals in a single probe with one crystal producing ultrasound continuously, and the other crystal receiving continuously. Physical therapists have long used ultrasonic diathermy devices in their work. These machines transmit continuously and employ a transducer 5-7 cm. in diameter.

INTERACTIONS WITH MATTER

In the frequency range described, 900 kHz to 5 MHz, sound is moderately absorbed as a result of relaxation (resonance absorption) phenomena occurring at the molecular and structural level.¹

With ultrasound, we can define three general groups or modes of action: (1) thermal effects, (2) cavitation, and (3) "direct" mechanisms.

Thermal Effects

The mechanisms leading to the absorption of a sound wave in a medium, and particularly in complex biological media, are not fully understood. Sound is absorbed very differently by various media.

A temperature rise may in itself be a significant factor in a biological system, and its magnitude in a particular situation will depend both

on the beam parameters in time and space, and on the absorbing and scattering properties of the media and on its properties as a heat sink (thermal conductivity and heat capacity). In mammals, including man, the heat transfer and dissipation characteristic of the vascular system influence the heating effects of the ultrasound.

In the physical medicine applications, a temperature rise of several degrees usually occurs in the course of a ten minute treatment. With intense, strongly focused beams changes of the order of 10°C per second can be produced in small tissue volumes.¹ Changes of this extent may have a special relevance to biological samples. Pulse-echo techniques operated as high as 250 w/cm² demonstrate no significant thermal effect, but the possibility of selective locally high intensity heating within critical structures of the cell cannot be ruled out.

There is much in the current literature concerning the use of hyperthermia for cell killing. Cell killing seems to show a marked rise at temperatures above 42-43°C.³ This concept is being carefully evaluated for use in conjunction with conventional radiotherapy or as a direct mode of cell killing in cancer therapy. In some of these studies, the heating is provided by an ultrasonic device.

Thus thermal damage may represent a very significant mode of action for ultrasound in biological systems.

Cavitation

The general term cavitation describes certain physical phenomena which occur in the frequency range previously described (900 kHz - 5 MHz). Most ordinary liquids contain stable micro-bubbles, or other minute nuclei around which bubbles of dissolved gas are found to grow during the negative pressure phase of a sound wave. After a critical size has been attained, which is characteristic of the sound frequency, such bubbles exhibit mechanical resonance. This, together with the small-scale patterns of fluid movement or "microstreaming" that it induces, can lead to localized regions of high shear and stress in the liquid sufficient to break subcellular structures. This phenomenon is commonly termed *stable cavitation*. In the 1-4 MHz frequency range, stable cavitation may occur in the liquid state above a threshold intensity of 0.2-5.0 w/cm².⁴

A more violent form of cavitation occurs above a threshold intensity of 300 w/cm^2 in a liquid at 1 MHz.⁵ This is collapse cavitation, or transient cavitation. In this case, the mechanical energy is sufficiently great to cause the cavitation bubbles to collapse completely during a compression phase of the vibration. In aqueous media one consequence of this collapse phenomenon is the production of a variety of short-lived chemical free radical species. In this respect ultrasound is analogous with ionizing radiation. The intensity levels given for the production of both stable and collapse cavitation in tissue are much larger, 2000-5000 w/cm^2 .⁶

A point of interest here is that cavitation, particularly the stable form, is a resonance phenomenon and will thus be most effectively stimulated when the ultrasound is applied continuously over a considerable number of periods of oscillation. In fact, cavitation may be completely absent with the very short pulse lengths normally used in pulse-echo diagnostic techniques.

In one series of experiments, no cavitation, either stable or unstable, was found to occur in the brain of a cat (*in vivo*) or in the blood plasma at intensities below 250 w/cm^2 , even with pulse duration of 0.1 second or longer.⁷

"Direct" Mechanisms

Most changes produced by ultrasound in both physical and biological systems can be explained on the basis of either thermal or cavitation effects. There is, however, a growing body of evidence which indicates that a third and possibly more "direct" mechanism may be involved.¹ The implication of the term "direct" in this context is simply that one is ignorant of the nature of any possible intermediate steps between the applied stimulus (mechanical vibration) and the observed response.

Direct mechanical effects on particles of the medium may take place. Under certain circumstances microstreaming, as mentioned, tissue movement not subject to reversal every half wave, and circulation of particles in the transmitting medium have been described. Such a direct effect can produce disruption of *macromolecules* and may produce disruption of chromosomes. Chemical changes may be induced in tissues by ultrasound, possibly as a secondary effect of other mechanisms. Chemical reactions may be accelerated, as may enzymatic action. Free radicals may

form by the collapse of cavitation bubbles, as mentioned, and initiate other chemical reactions. Other phenomena, such as shearing, particle agglomeration, and changes in the surface charge and electrophoretic mobility of cells have also been described, but the magnitude of these effects *in vivo* are yet unknown.

Most probably the mechanisms of action of ultrasound vary with the experimental conditions, the target tissue, and the irradiation parameters. However, the "direct" effects are of particular importance with regard to hazard, since it is very unlikely, on physical grounds, that the ultrasonic beams used in medical diagnosis would induce either appreciable thermal change or cavitation action.

BIOLOGICAL EFFECTS

Studies dealing with effects of ultrasound on living structures extend back to the observations made by Langevin in 1917 during the course of his original work on underwater echo sounding, and an extensive literature on the subject has developed in the intervening period.

While the ultrasound bioeffect literature is extensive, there has not been, on the part of biologists, a great awareness of the physical problems associated with sound. Thus, though biological data are fairly extensive, there is little comprehensive dose, dose rate, and dose distribution data.

Because of their potential implications for future generations, as well as immediate effects in the fetus, chromosome damage by ultrasound has been extensively studied. Essentially all the positive data that exists for chromosome abnormalities comes from the work of MacIntosh and Davey. In two separate papers these workers reported chromosome aberrations in lymphocytes in culture.^{10,11} A Doptone fetal heart monitor operating at 2 MHz for one hour was used in these experiments. The output was variable from 0 to 80 mw. The work suggests a threshold intensity of ultrasound of 8.2 mw/cm^2 below which no visible chromosome damage was detected. Above this value the aberration yield then increased with increasing ultrasound intensity.

Several studies, however, have failed to confirm this damage to the chromosomes from ultrasonic devices. Following the MacIntosh-Davey report, four separate studies were unable to de-

fect any chromosome aberrations in circulating lymphocytes.¹²⁻¹⁵ A variety of ultrasound devices were used operating at frequency ranges from 1 to 2.5 MHz. Intensity levels were from 30 mw/cm² to 8 w/cm². Also sonication times as long as 20 hours were used. These data suggest that some problems exist in the MacIntosh-Davey system. Chromosome aberration scoring is very subjective, and an error of this sort may have been present in these experiments.¹²

In a recent paper by Lyon and Simpson¹⁶ tests for genetic damage were made on mice whose gonads had been exposed to ultrasound at a frequency of 1.6 MHz for 15 minutes. Studies were made at 1.6 w/cm² continuous intensity, or 0.9 w/cm² pulsed intensity. There was no evidence of induction by ultrasound of dominant lethal mutations or sterility in males, no drop in testicular weight or sperm count, and no induction of translocation or chromosome fragments in spermatocytes, for up to eight weeks after a treatment. Similarly, in females no dominant lethal induction was detected in the period from several days before mating to the day of mating. Genetic tests in bacterial systems also failed to show significant effects due to ultrasound.¹⁷

Pizzarello, et al., have reported an effect of pulsed ultrasound on rapidly proliferating embryonic tissue. In their test system, they found a retardation of growth in approximately 75% of the test animals.¹⁸

Some thermal effects ascribed to ultrasound have been described in fetal mice. In these experiments fetal mice exposed to diagnostic level ultrasound for five hours showed some degree of lethality.^{19,20} A group of human fetuses, scheduled for therapeutic abortion, showed no such effects after sonication for as long as 10 hours. An extensive retrospective clinical study of obstetric patients by Hellman, et al., revealed no evidence of fetal or maternal injury.²¹ Their review of 1,114 normal obstetric patients undergoing ultrasound examination revealed no evidence of increased fetal abnormality or abortion in comparison to the general population. Bernstein reviewed a series of 720 patients who had 5-15 minutes of ultrasound at greater than ten weeks gestation.²² He found no evidence of hazard from the ultrasound.

At higher intensity levels, above the diagnostic range, there is literature evidence of ultrasound damage. Taylor and Pond irradiated the spinal

cords of adult rats at peak intensities of 25 or 50 w/cm² at frequencies of 0.5-6.9 MHz.²³ Delivery of energy was pulsed-10:100 ms. Such treatment resulted in paraplegia and/or gross haemorrhage into the cord. Damaging ability was maximal at the lowest frequency employed (0.5 MHz). Ultrasonic damage was found to decrease with increasing frequency up to 5 MHz. At this frequency neither paraplegia nor haemorrhage could be detected.

By changing duty cycles, Taylor and Pond found that haemorrhage occurred whenever an accumulated dose-time had been received which was characteristic of each intensity. This suggests an inability of the system to repair, or recover, from ultrasound damage. Using a plant system, other workers also found this lack of repair between dose fractions.²⁴ This is in direct contrast to the repair of damage from ionizing radiation that is seen in most systems.

The synergism of ionizing radiation and ultrasound bears mentioning, both from the diagnostic and therapeutic standpoint. Several years ago, Conger reported finding an increase in chromosome aberration yields when X-ray treatment was combined with the ultrasound.⁹ These data showed an increase of treated to control of about 1.3/1.

Woeber reported complete regression of Walker carcinomas in rats following 350 rads of X-rays accompanied by ultrasonic irradiation at 1 w/cm². Equivalent results were reported following 600 rads of X-rays alone, implying that the ultrasonic irradiation increased the X-ray effectiveness by a factor of 600/350 or about 1.7.²⁵ Clarke, et al., on the other hand, could find no such synergism in an *in vitro* system.²⁶

More recently Todd and Schroy reported that there is an increase in cell killing when ultrasound is combined with X-rays.⁸ Cells irradiated with X-rays plus 140 mw/cm² ultrasound (920 kHz) for ten minutes showed a significantly greater ($\times 1.4$) cell killing than cells receiving X-rays alone.

SUMMARY

In summary, current literature suggests that diagnostic level ultrasound alone produces no significant genetic damage to systems tested so far. Further, no gross abnormalities have yet been observed at diagnostic intensities. But as with all medical practice, a proper assessment of the risk/benefit situation should be made regard-

ing the use of diagnostic ultrasound. This is particularly important until biological data are more conclusive, and especially when the ultrasound procedures are combined with diagnostic radiography. The possible synergism of ultrasound and ionizing radiation may represent a potential problem for diagnostic procedures, and a potential benefit in radiotherapy.

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Evaluation and Management of Adrenal Gland Disorders

Nabil K. Bissada, M.D., and Alex E. Finkbeiner, M.D.*

The adrenal gland is a small, yellowish structure lying within the perinephric fascia in close proximity to the upper pole of each kidney. Each adrenal gland is composed of a cortex, comprising approximately 90 percent of the weight of the gland, and a medulla which is completely surrounded by cortical tissue. Microscopically, the adrenal cortex is divided from without inward, into three zones: The zona glomerulosa, zona fasciculata and zona reticularis which are responsible for the production of mineralocorticoids, glucocorticoids and sex hormones respectively.

DISORDERS OF THE ADRENAL MEDULLA

Pheochromocytoma

Pheochromocytoma may arise wherever chromaffin cells are located. The majority arise in one adrenal medulla, although bilateral adrenal tumors and extra-adrenal tumors are not uncommon, especially in children. Extra-adrenal pheochromocytomas may arise near the sympathetic trunk in the retroperitoneum especially just above the aortic bifurcation (organs of zuckerkanndl), in the thorax or the head and neck and even in the urinary bladder.

About two-thirds of patients with pheochromocytoma have hypertension; in half of them, the hypertension is accompanied by paroxysmal attacks. About one-third of all patients with pheochromocytoma have no sustained hypertension and these usually present with the typical paroxysmal attacks. During an attack, the patient may experience headache, palpitation, excessive sweating, anxiety, pallor or flushing, tremors, nausea and vomiting, weakness, faintness and chest or epigastric pain.

The diagnosis of pheochromocytoma depends on the demonstration of elevated catecholamines or their metabolites (metanephrines and VMA) in the urine or elevated plasma catecholamines.

Localization of the site(s) of pheochromocytoma is usually accomplished by radiological means; that is, excretory urography with nephrotomography, with or without retroperitoneal pneumography, adrenal aortography and/or

adrenal venography. Since these tumors are usually quite vascular, the authors prefer to proceed from excretory urography with nephrotomography to adrenal arteriography (Figure 1). The radiologist should be ready to manage a hypertensive crisis (using phentolamine) if it is precipitated by arteriographic manipulations. Avascular pheochromocytomas, multiple and ectopic tumors still present difficulties. Determination of free catecholamines from venous samples at different levels of the vena cava and adrenal scanning are occasionally helpful. Chest radiography and tomography in different views are necessary for the demonstration of intrathoracic tumors.

The usual management of pheochromocytoma is surgical excision. Pre-operatively, the patient's cardiovascular and renal functions should be assessed since they may be affected by hypertensive vascular complications or myocarditis. The thyroid and parathyroid glands and the gallbladder should be evaluated since there is an association between pheochromocytoma and thyroid carcinoma, hyperparathyroidism and cholelithiasis respectively. The use of adrenergic blocking agents pre-operatively is rather controversial. These patients are very sensitive to any blood losses and may benefit from pre-operative



Figure 1.
Arteriogram of a patient with right adrenal pheochromocytoma.

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blood transfusion. They should be adequately hydrated prior to surgery.

In some instances, a patient with pheochromocytoma may be in such a poor general condition that only a non-surgical management with adrenergic blocking agents is possible.

Neuroblastoma

Neuroblastoma is one of the most common abdominal malignancies in infants and children. It may arise from the adrenal medulla (Figure 2) or from the sympathetic ganglia of the retroperitoneum, posterior mediastinum or the neck, and rarely from other sites such as the bladder. Occasionally the tumor is multicentric.

A combination of surgical excision, radiotherapy and chemotherapy may be utilized in the management of patients with neuroblastoma. Surgical excision of resectable tumors is probably the most effective step in the management. Radiotherapy plays a key role in patients with known or suspected residual tumor after surgical excision. Chemotherapy in the form of cyclophosphamide and vincristine may have an effective palliative value, but does not seem to substantially increase survival rates.

The most important factors affecting survival in patients with neuroblastoma are the age of the patient and the stage of disease at the time of diagnosis.



Figure 2.

Aortogram demonstrated a large tumor (neuroblastoma) in left adrenal.

DISORDERS OF THE ADRENAL CORTEX

Cushing's Syndrome

Cushing's syndrome is due to a chronic excess of cortisol. In about 70 percent of the cases the disease is due to adrenocortical hyperplasia secondary to increased excretion of corticotropin (ACTH). About 25-30 percent of patients with Cushing's syndrome have an adrenal tumor either benign or malignant.

Manifestations of Cushing's syndrome include truncal obesity, hypertension, hirsutism, suppression of gonadal function, plethoric appearance, muscle weakness and purplish cutaneous striae. Mental disturbances, ranging from emotional lability to major psychosis is present frequently. There is marked susceptibility to infection and poor wound healing.

The diagnosis of Cushing's syndrome requires evidence of maintained increase in cortisol secretion and the loss of normal pituitary-adrenocortical feedback control. It is also necessary to obtain information concerning the underlying lesions, i.e., bilateral adrenocortical hyperplasia versus adrenocortical tumor. Various procedures are now available for the demonstration of an increase of cortisol production including measurement of plasma cortisol, urinary cortisol, ketogenic steroids and 17-hydroxycorticoids excretion. Bilateral adrenal hyperplasia is not suppressed by small doses of dexamethasone, but is usually suppressed with larger doses. On the other hand, patients with Cushing's syndrome due to adrenal tumor fail to show a significant fall in plasma or urinary steroids in response to large doses of dexamethasone. Other tests such as the response to exogenous ACTH, or to metapyrone are useful in the differentiation between adrenal hyperplasia and adrenal tumors. Furthermore, the demonstration of significant increase in *both* urinary corticosteroids (17-ketogenic steroids and 17-hydroxycorticoids) as well as elevated 17-ketosteroids strongly suggests a malignant tumor.

Localization and demonstration of these lesions is accomplished by radiographic means similar to those outlined before.

Cushing's syndrome due to adrenal tumor requires adrenalectomy. Treatment of bilateral adrenal hyperplasia requires individualization. Most patients with significant manifestations of Cushing's syndrome due to adrenal hyperplasia have no sellar enlargement on skull radiograms and usually require bilateral adrenalectomy. On

the other hand, some patients will have sellar enlargement indicating the presence of a pituitary adenoma. These patients may be managed by hypophysectomy or pituitary irradiation depending on the presence or absence of neurological manifestations.

It is of utmost importance to prepare the patient pre-operatively. Potassium deficiencies, infection and congestive heart failure should be corrected. Steroid management pre-operatively, intra-operatively and post-operatively is essential.

Primary Aldosteronism

Primary aldosteronism is usually due to a cortical adenoma. Sometimes it is due to adrenal hyperplasia or rarely an adrenal carcinoma. In this condition, there is an increased aldosterone production leading to sodium retention (resulting in expanded extracellular volume) and to increased excretion of potassium (resulting in hypokalemia, potassium depletion and intracellular hydrogen shift with systemic alkalosis).

Patients with primary aldosteronism usually present with hypertension and may have muscle weakness, headache, polyuria, nocturia, polydipsia, parathesias, visual disturbances, intermittent paralysis, tetany or muscle discomfort.

The diagnosis of primary aldosteronism depends on demonstrating the following criteria in a hypertensive patient: 1) hypokalemia with potassium wastage; 2) elevated aldosterone output despite sodium repletion or mineralocorticoid (desoxycorticosterone) administration; 3) suppressed plasma renin despite upright position and sodium depletion.

Localization of the site of increased aldosterone production (usually a small adenoma) can be accomplished by adrenal arteriography, adrenal venography, venous blood sampling or iodocholesterol isotope adrenal scanning.

Management of primary aldosteronism due to adrenal tumor is adrenalectomy. Patients with adrenal hyperplasia are managed either medically or by adrenalectomy, but the results of surgery in this group are not as successful as when a tumor is removed. Proper preparation of the patient for surgery includes correcting potassium deficits by potassium supplements in conjunction with low sodium intake and spironolactones.

The Adrenogenital Syndrom

This condition is due to increased production of adrenal sex steroids.

The congenital (prenatal) forms are due to enzymatic defects in the biosynthetic pathways

of adrenocorticosteroid hormones. The most common enzymatic defect is that of C-21-hydroxylase. In females, there is usually a variable degree of virilization ranging from clitoral hypertrophy to extreme virilization with a male appearing external genitalia including a phallus and a urethral opening at the tip of the glans. When the disorder is severe, aldosterone synthesis is also materially impaired. Therefore, in addition to virilization, significant and life threatening sodium loss may occur in these patients. Males with the usual form of congenital adrenogenital hyperplasia have normal male external genitalia, but may have severe electrolyte disturbances. Those with the incomplete enzymatic deficit may present later with macrogenitosomia precox. In both males and females, the 17 ketosteroids will be elevated. Management of congenital adrenal hyperplasia consists of hormonal replacement, i.e., cortisone and in many patients a mineralocorticoid. Early diagnosis and sex assignment are important. Most female patients with ambiguous genitalia will require surgical correction of external genitalia such as clitoroplasty and/or vaginoplasty.

Acquired (postnatal) adrenogenital syndrome is usually due to a tumor; commonly malignant. Less often it is due to adrenal hyperplasia which occurs mostly in infants and young children. A virilizing adrenal tumor results in regression of feminine characteristics and development of masculine changes. Cushingoid features may be present. As stated previously the presence of mixed virilization and cushinoid features should always arouse the suspicion of malignancy. In such instances both the 17-ketosteroids as well as the 17-ketogenic steroids and 17-hydroxycorticoids are elevated. Management of adrenal tumor consists of surgical exploration and adrenalectomy.

Adrenocortical Tumors

Tumors of the adrenal cortex may be divided into functioning and non-functioning tumors and either may be benign or malignant.

Non-functioning Tumors

Benign, non-functioning adrenal tumors are usually small and rarely present clinically. Non-functioning tumors large enough to produce symptoms are usually malignant. They may present as an abdominal mass or with pain, but may also present with evidence of metastatic disease involving the liver, lymph nodes or lungs, or with non-specific symptoms such as malaise, weight loss and fever. Occasionally a patient with

adrenal carcinoma presents with shock due to massive adrenal hemorrhage.

Functioning Adrenal Tumors

Benign, functioning adrenal adenomas may produce a picture of Cushing's syndrome or of hyperaldosteronism. Malignant functioning adrenocortical tumors present either mainly with virilism associated with variable degrees of Cushing's syndrome, or mainly with Cushing's syndrome associated with variable degrees of virilization. Rarely does adrenocortical carcinoma present with a picture of feminization in males.

Excretory urography and arteriography are helpful in localization of adrenal tumors and evaluating the extent of their local extension. Management consists of surgical excision when feasible.

Adrenal Cysts

Adrenal cysts may be endothelial, parasitic, epithelial or pseudocysts. Pseudocysts comprise about 40 percent of all adrenal cysts, and are the most common type of adrenal cysts recognized clinically. They are due to hemorrhagic extravasation into normal or pathological glands. They may be discovered incidentally at the time of surgery or at autopsy, or they may produce vague abdominal symptoms or an abdominal mass.

Surgical exploration and excision of adrenal cysts is indicated when they are symptomatic or there is doubt about the diagnosis.

SUMMARY

A brief discussion of the diagnosis and management of adrenal disorders were presented. The presentation included pheochromocytomas, neuroblastoma, Cushing's syndrome, the adrenogenital syndrome, hyperaldosteronism, adrenal cysts and tumors.

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ELECTROCARDIOGRAM

OF THE MONTH

• • • • •
The Department of Cardiology, University of Arkansas College of Medicine

HISTORY: Mrs. P. is a 68-year-old smoker who has presented with an exacerbation of bronchitis. Additionally, she gives a good history for chronic obstructive pulmonary disease and also reports a prolonged episode of chest pain associated with vomiting about six weeks prior to this visit for which she was unable to obtain medical attention.

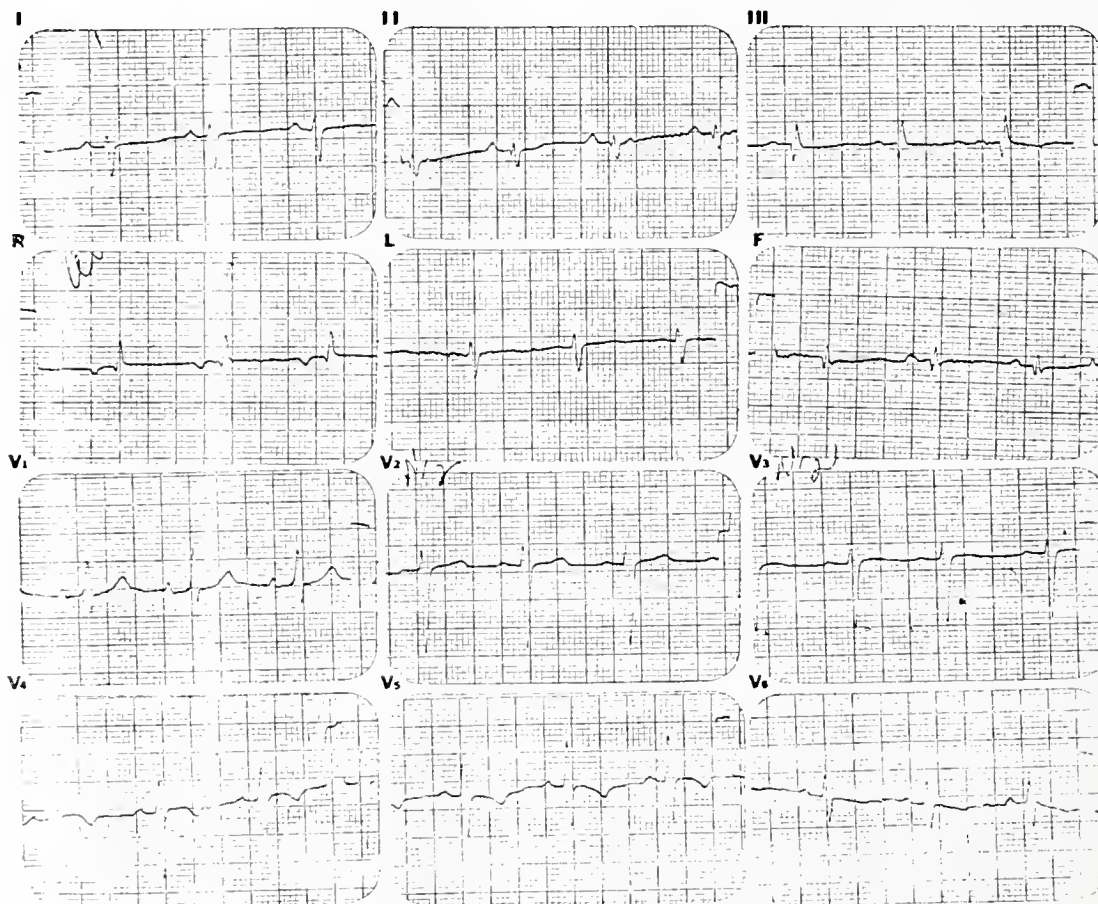
Her chest examination yields findings consistent with emphysema. Cardiac examination reveals a weakly palpable left parasternal impulse and an accentuated pulmonic second sound which moves properly with respiration. Neither a murmur, a gallop, or an opening snap is present.

Her chest x-ray suggests right ventricular enlargement but does not show left atrial enlargement, congestive failure, or "left ventricular configuration."

Her ECG is shown. Which of the following interpretations are reasonable?

- a) Technically compromised ECG with right arm-left arm lead reversal.
- b) Inferior and true posterior infarction of indeterminate age.
- c) Right ventricular hypertrophy.
- d) Left posterior hemiblock.
- e) Right bundle branch block.

(See Answer on Page 383)



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Spinal Stenosis

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This entity is best described by first noting that the spinal canal is made up of bony structures that vary in shape from person to person and from level to level in the vertebral column. Secondly the area circumscribed by the bony elements is filled with nerves and vessels. Therefore, any relative decrease in the so-called "free space" in the spinal canal may cause symptoms of low back pain and/or sciatica (Figure 1). Usually degeneration of disc, herniation of disc or joint degeneration will also be present in the symptomatic case.

DEVELOPMENTAL

Through some abnormality of the genetic or growth process the entire canal is smaller (Figure 2). Therefore only a small amount of disc or joint abnormality becomes symptom causing. Also minor injuries are worse and more painful and take longer to heal.

DEGENERATIVE

Because of joint changes the area of the

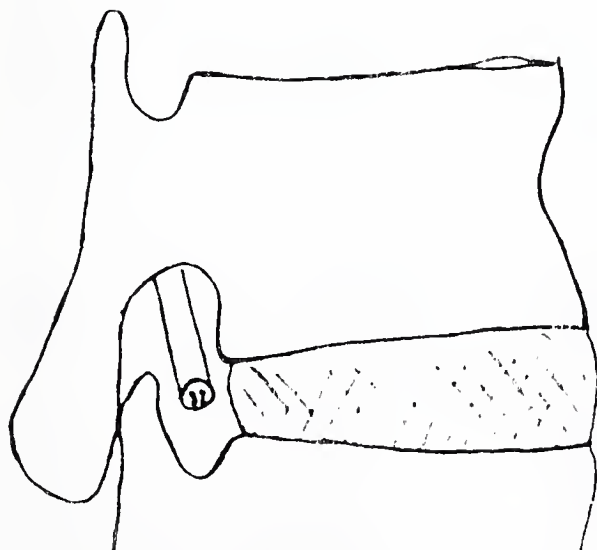


Figure 1.
Normal relationship of nerve root to foramen.

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spinal nerve foramen and lateral recess (Figure 2) becomes restricted. Therefore, degenerative changes on the other side, in the disc, are more likely to cause symptoms.

SURGICAL

The healing process following surgery, either to relieve nerve pressure from a herniated nucleus pulposus or for spinal fusion, may encroach on spinal nerve foramen or lateral recess area.

DIAGNOSIS

The diagnosis of this entity is difficult. It can be suspected on the basis of vague diffuse symptoms or symptoms of nerve root pressure

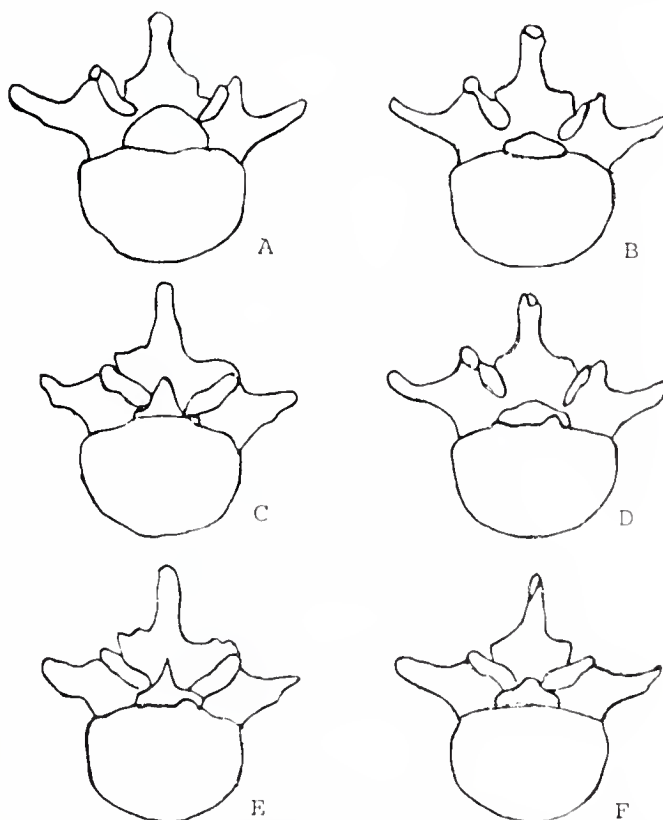


Figure 2.
A. Normal spinal canal.
C. Degenerative stenosis.
E. Degenerative stenosis with disc herniation.

B. Congenital stenosis.
D. Congenital stenosis with disc herniation.
F. Congenital stenosis with degenerative stenosis.

at multiple areas. The myelogram exam (Figure 3) can also give one the impression of stenosis, but the axial tomography diagnostic technique (Figure 4) is the only specific test that confirms a diagnosis of spinal stenosis.

TREATMENT

Surgery is usually necessary to relieve the symptoms of this problem.

Surgery may be directed to the spinal canal contents (remove herniated nucleus pulposus and/or scar tissue) or to the bony ring (foraminotomy, osteotomy and/or fusion of the transverse process) (Figure 5). The degenerative processes that encroach on the lateral recess are the most difficult to correct surgically since con-

siderable bone must be removed, and very carefully if nerve damage is to be avoided, and a transverse process fusion done to stabilize the area. This stabilization is necessary to relieve symptoms of instability and help prevent regrowth of scar in the operated area.

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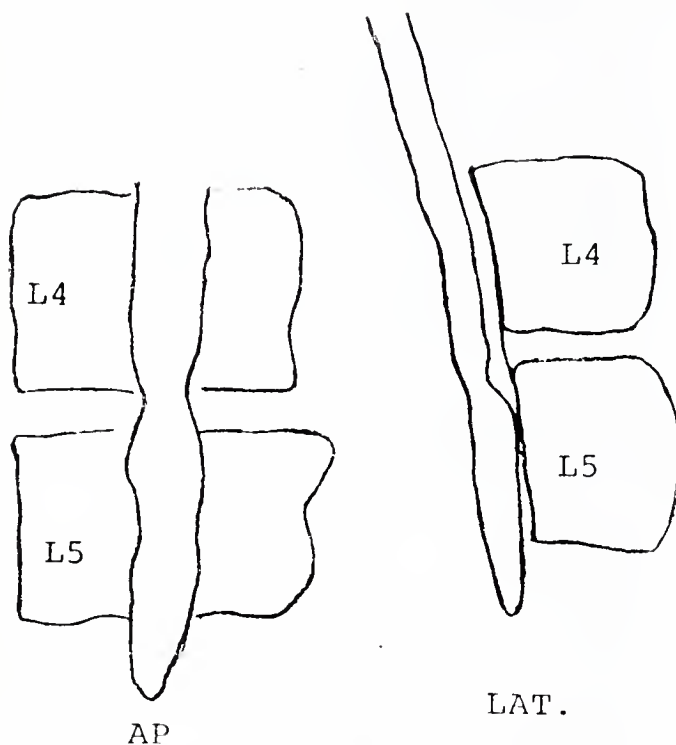


Figure 3.

Line drawing of appearance of myelographic dye column in congenital stenosis.

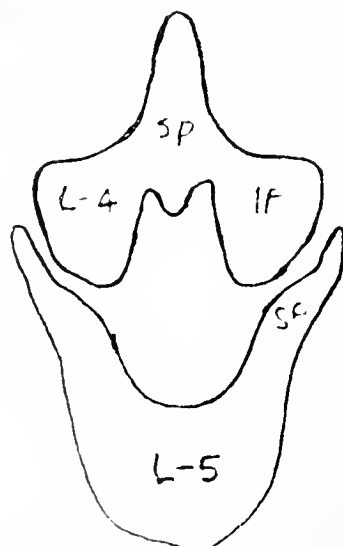


Figure 4.

Normal axial tomography of L4-5 spinal canal (line drawing from x-ray).

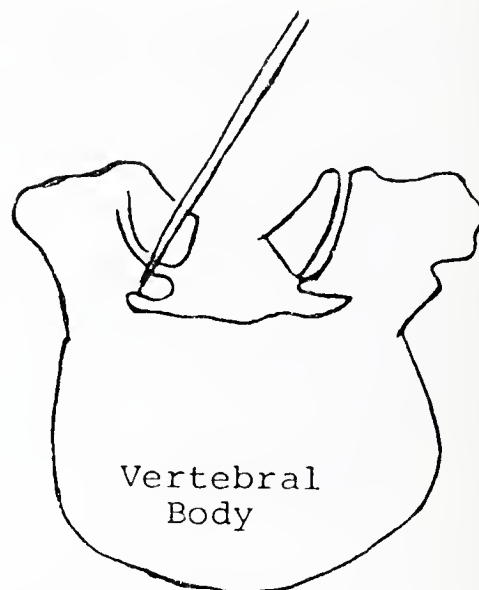
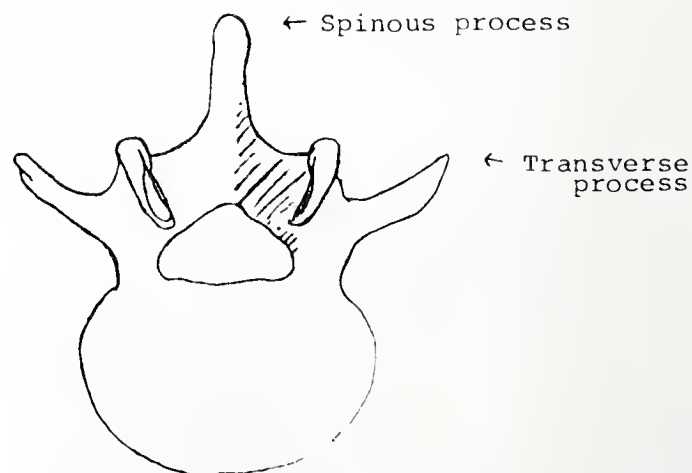


Figure 5.

A. Cross section view to illustrate osteotome removing bone in lateral recess stenosis.



B. The shaded area is bone removed to relieve central stenosis.



The Lower Back in Sports Medicine

Walter Duke Harris, M.D.*

Problems related to the low back in both the athlete and the non-athlete have remained a rather vague area in diagnosis, and a difficult area to treat. The unique posture in man associated with the evolving complex anatomy may contribute to the nearly universal complaint of low back pain. The erudite biomechanics and biochemists have begun to give more attention to this area of rather frequent sports injury and more precise management of certain specific problems is now available.

Three common and relatively minor injuries in the athlete are strain, sprain, and contusion. Contusion, caused by a direct blow, may be quite painful and extensive due to the large bulk of the paravertebral muscles. Application of cold, rest, and analgesics which do not interfere with the clotting mechanisms, remain the early treatment. The hip pointer is generally a more severe contusion of the posterior iliac crest. Strain — a pulling of the muscles or tendons — and sprain — a tearing of a ligament — may be difficult to differentiate in the back, and the exact differential may not be necessary for practical purposes. A sprain may be painful when force in the opposite direction is applied (i.e. forward flexion is painful with supraspinous ligament injury),

whereas strain is likely to be painful when active contraction of the strained muscle is attempted, but not so painful when passive motion is applied. Due to the intricate relationships of muscles, tendons, and ligaments in the back, it is likely that most injuries are a combination of two, or even all three of these entities.

Once more severe injuries are ruled out by physical exam and x-ray, the treatment of these entities is similar. Ice, analgesics, and rest for the acute stages, followed by heat, physical therapy modalities, gradual resumption of activity, specific exercises to strengthen surrounding muscle groups, protective padding, splinting, or even bracing are included in the armamentarium of treatment and rehabilitation. While many modes of pain relief exist, we know of no treatment which speeds up actual tissue healing. The complications of an organized hematoma, chronic strain, or frank instability, may result from early re-injury, and the physician who is aware of the possibilities of the long-term disability should make the decisions as to when the athlete may resume his sport.

Fracture of the spinous processes, the transverse processes, or compression fracture are generally considered stable fractures. They may clinically resemble the above and require x-rays

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to differentiate them from the severe strain, sprain, or contusion. Opinions vary on management, and of course, depend on the extent and exact location of the bony injury. These people will likely require prolonged absence from sports and should be evaluated by one versed in treatment of these injuries.

Unstable fractures and fracture-dislocations are fortunately rare injuries in the lumbar spine. Violent trauma and severe localized back pain with or without radicular nerve root symptoms require careful sensory and motor examination of the lumbar roots. Suspicion of these injuries dictates great care in transport. The player should not be moved until adequate help is available. He should then be transported on a backboard via ambulance to the hospital in the supine position with a bolster under the small of the back, or in the prone position if found this way initially, or if there is loss of consciousness. Maintenance of an airway and treatment of shock should be considered throughout. Long-term care and rehabilitation are ideally carried out in a facility specifically equipped to handle this problem.

Currently, spondylolysis — a defect in the pars interarticularis — and spondylolisthesis — a slipping forward of one vertebra on another — are receiving much attention. It is now established that many of these defects are stress fractures and, like the stress reaction in other bones, will progress to healing if diagnosed early and properly managed. Lingering low back pain in the athlete exposed to hyperextension stress — notably divers, gymnasts, and football linemen — should have x-rays of the lumbosacral spine, including oblique views. If these are unrewarding, repeat x-rays at three to six week intervals, or bone scans have been advocated. Occasionally, the process can be diagnosed *early* when only thinning of the pars is present, or when a defect first appears. It is felt that marked restriction of activity, bracing, or even body casting can abort the process and allow healing of a frank spondylolysis. While this approach might be considered too aggressive, the tendency to chronic low back pain in the young or middle-aged adult should be considered. It is also noteworthy that once the defect has healed, it does not tend to recur in the same location and the athlete may return to his sport. Once an *established* defect

is found and known not to be progressing, the problem is one of managing the athlete's symptoms. Whether this be by exercises, revision of sports activity, or physical therapy and bracing, remain individual decisions of the player and his parents. Spondylolisthesis of Grade III or IV (a slip of over half the width of the body of the underlying vertebra) is an absolute contraindication to sports activity, and probably should be fused in the immature spine.

Scoliosis — lateral curvature of the spine — in the young athlete requires a search for etiology and follow-up to detect progression. Discrepancy in the level of the shoulders or the iliac crests, or a list to one side are the usual clinical signs of a curve. The management of scoliosis is a broad topic and not within the scope of this paper, but every physician, trainer, or coach should be aware of the magnitude of the problem and provide trained follow-up for these individuals no matter how small the curve. Some of these young people will require treatment in the classic Milwaukee brace or in the newer Boston brace. It is our current policy, with parental permission, to allow these patients to be out of these braces up to three hours a day for active participation in sports unless symptoms or progression of the curve dictate otherwise.

A variety of other conditions occur and frequently require special consideration. Herniated discs are much rarer in the young athlete than in the adult. Buttock or leg pain in the immature spine is more frequently secondary to spondylolisthesis, but herniated discs do occur and unremitting back pain with or without nerve root symptoms requires careful evaluation and certainly restriction of activity. Suspicion of renal injury requires a search for blood in the urine. If this is found, an IVP to rule out underlying genitourinary pathology should probably be performed and urologic consultation considered. Rupture of the spleen, as manifest by signs of blood loss and a heaviness in the left flank, can occur. The frequency of infectious mononucleosis with splenic enlargement in this age group must be remembered, and surgical advice sought if suspicion of acute or delayed splenic rupture exists. Finally, and paramount in sports medicine, is the fact that injury can be superimposed on pre-existing pathology. Bizarre neurologic signs or symptoms, night pain,

chills and fever, or persistent low back pain in the young athlete should warrant consideration of bony or neural tumors, infections, or degenerative processes, and not be lightly dismissed as those of a chronic complainer.

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Neonatal Hypothyroid Screening in Arkansas

Sam L. Shultz, M.D.*

Many physicians in the state may recall a child with cretinism in their years of practice. Hypothyroidism, one of the most common congenital endocrine disorders, has multiple causes. Primary thyroid failure or thyroid dysgenesis accounts for 85% of the total picture. This sporadic disorder rarely affects more than one family member. Total absence of the thyroid gland is rare, as the majority of babies will have some rudimentary tissue on scanning study.

ABBREVIATIONS

TRF — Thyroid releasing factor

TSH — Thyroid stimulating hormone

T₄ — Serum thyroxine

Other less frequent causes of hypothyroidism are deficiency of TRF, radioiodine administration to pregnant women with hypothyroidism or thyroid cancer, and dyshormonogenesis. This last condition may be clinically suspected by the presence of a goiter. TRF is a tripeptide released by the hypothalamus to control pituitary TSH secretion. Rarer still are isolated TSH deficiency, TSH unresponsiveness, and unresponsiveness of the thyroid to T₄. The incidence of hypothyroidism is 1 in 5,000 to 1 in 6,000, documented from several geographic areas. In Arkansas, with 32,000 birth/year, we could expect to see 5 to 7 cases/year. There is a sex difference with females affected more frequently than males, and there appears to be a greater incidence in Caucasians.

Prematurity and its related stresses seem to be associated with increased incidence of abnormal thyroid function. According to Fisher,¹ the 32-35 week gestation infant can usually be evaluated by existing biochemical methods, such as TSH and T₄. These guidelines may be less useful in the more premature infant. From a

practical standpoint, hypoxia, RDS, sepsis and other neonatal stresses will lead to lowered T₄ values.

Mass screening programs are more effective in conditions not readily identifiable clinically. Early crib side diagnosis of hypothyroidism is difficult. Several studies of neonates have borne this out. Foley² found only 28% of a group of biochemical hypothyroid infants to have greater than one clinical feature of the disease. Also, the majority (72%) had normal bone ages on X-ray. Dussault's³ report of 28 cases identified by screening stated only three had clinical features. Dr. Theo C. Panos,⁴ late Chairman of Pediatrics at UAMSC, reported on 20 children greater than 6 months of age with the following findings:

Developmental Retardation	20/20
Lethargy	18/20
Puffy Facies	17/20
Growth Retardation	16/20
(3 partially treated)	
Delayed Fontanelle Closure	15/20
Tongue Enlargement	15/20
Abdominal Distension	15/20
Coarse Thick Skin	15/20
Umbilical Hernia	12/20
Hoarse Voice	11/20
Hair Dry, Coarse	7/20

Lowery,⁵ et al., reported the progression of findings in untreated children at varying ages.

Findings (% age)	39 cretins	39 cretins	49 cretins
	1 month	3 months	6 months
Lethargy	37%	64%	96%
Constipation	34	70	92
Weight gain problems	62	72	83
Respiratory distress	58	68	76
Dry skin	33	76	76
Umbilical hernia	67	67	67
Myxedema	13	40	67
Prolonged icterus	12	12	12

*Division of Maternal and Child Health, Arkansas Department of Health, 4815 West Markham Street, Little Rock, Arkansas 72201.

Klein⁶ reported on three studies showing that treatment by 3 months of age is associated with significantly higher IQs than treatment at 6 months. He likewise stated that a group of 32 hypothyroidism infants treated by 6 months developed equally well mentally as did the earlier group. This older group had thyroid tissue demonstrable on ¹³¹I uptake. So it can be seen that the picture is of gradual onset, usually well established by six months but less likely to respond to later treatment. Some researchers feel that the children who do poorly have been exposed to a longer period of thyroid deprivation in utero.

The original work on thyroid screening was reported from Quebec in 1976,^{3,7} covering 175,000 infants in a 2 year period, diagnosing 28 cases. Heelstick blood dripped onto filter paper in conjunction with the PKU was tested for T₄ by radioimmunoassay; any specimen falling outside two standard deviations from the mean (approximately the low 3%) was subjected to a TSH by radioimmunoassay. Babies with a high TSH were admitted for endocrine evaluation.

The following table may be of value in interpreting screening data.

Three factors should be noted; (1) Use of T₄ alone will result in an overly high percentage of normal babies being recalled, (2) Use of TSH alone is quite expensive and misses the baby with hypothalamic/hypopituitary cretinism, and (3) There is no absolute value for low T₄ because of the variability of the geometric mean from day to day.

In addition to the Quebec program, screening is now set up in California, Pennsylvania, Oregon, and New England, to name a few. Of the six states bordering Arkansas, none has a hypothyroid screening program.

The last legislative session set aside \$24,000 to be used for hypothyroidism screening over the next fiscal year. Almost all Arkansas hos-

pitals submit heelstick blood on filter paper to AHD for PKU testing. The same sample can be used for hypothyroidism screening, provided adequate blood is dripped onto the filter paper. Radioimmunoassays for T₄ and TSH are done on the gamma counter at the AHD Laboratory. Approximately 150 T₄ samples can be run daily. The lowest 3% are incubated with radioisotope for 72 hours and the TSH value obtained. Any combination of low T₄ and elevated TSH is reported immediately to the physician by the medical consultant or the nurse practitioner. The form returned to the submitting physician or hospital will show the actual T₄ value, and TSH where applicable. The values may be presumed to be normal unless followup correspondence is sent from the MCH Division. In order to elevate the program's effectiveness and to determine the etiology of each individual case of hypothyroidism, we are strongly suggesting each child with positive screening results be referred for total thyroid workup by pediatric endocrinologists such as those at Arkansas Children's Hospital. Upon notification of the abnormal lab data, an appointment will be made if desired. The above mechanisms of followup are in accord with the New England Screening Program.

The following table of thyroid function tests is included:⁸

NORMAL VALUES FOR INVITRO
THYROID FUNCTION TESTS

TEST	NORMAL RANGE
Serum T ₄ (Murphy-Pattee)	4.5 - 10.5 µg/100 ml
Serum T ₄ (RIA) (Murphy-Pattee)	4.5 - 13.2 µg/100 ml
Serum T ₃ (RIA)	50 - 220 ng/100 ml
T ₃ resin uptake	35 - 45%
T ₃ resin uptake ratio	0.86 - 1.14
T ₄ - T ₃ resin uptake index ("T ₇ ")	4.5 - 13.2 µg/100 ml
Serum TSH (RIA)	1.5 - 10 µU/ml
T ₄ - T ₃ index	1.5 - 13.2 µg%
Serum TBG (RIA) Children	2.5 - 6.1 mg%
Serum FT ₄	
% dialyzable (% FT ₄)	0.022 - 0.032
FT ₄ concentration	1.1 - 2.2 ng%
Serum TBG capacity, children	11 - 32 µg%

Table V. Spectrum of laboratory values in neonatal hypothyroidism

Diagnosis	Filter Paper Spot		Serum			TSH	¹³¹ I Uptake	Thyroid Tissue
	T ₄	TSH	T ₄	T ₃	RT ₃			
Primary hypothyroidism	↓	↑	↓	↓	N	↑	↓	+ or -
Hypothalamic or hypopituitary hypothyroidism	↓	N	↓	↓ or N	N	N	↓	+
Dyshormonogenesis	↓	↓ or N	↓	↓ or N	?	↑ or N	N or ↑	Goiter
				or ↑				

ADDENDUM: In the past 4 months, the PKU screening program has picked up two Arkansas babies. Upon evaluation at Children's Hospital, one has the disorder; the other is undergoing further testing.

Appreciation is given to Dr. Jocelyn Elders and Dr. Robert H. Fisher, Jr., pediatric endocrinologists at UAMSC, who reviewed the manuscript.

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EDITORIAL

Here and There

Alfred Kahn, Jr., M.D.

Aside from obvious biologic differences in males and females, there appear to be some subtler ones. In an article entitled "Androgenic Hormones Modulate Autoantibody Response and Improve Survival In Murine Lupus," Roubinian, Papoian, and Talal (*Journal of Clinical Investigation*, Vol. 59, page 1066, June, 1977) studied B/W mice which have an auto immune disease like lupus erythematosus. This strain of mice are able to make LE cells and nucleic acid antibodies; they can have immune complex glomerulonephritis. They further state that this lupus-like disease has a definite sex difference — female mice have a much more severe disease and it tends to begin earlier. The authors investigated the impact of the animal's sex on lupus. They were impressed that the lupus susceptibility may have been established very early in the animal's life; the female mice had an earlier

appearance of anti DNA antibody and an earlier switch to 7 S antibody. The authors state that androgens play a protective role in the auto immune disease of mice; they suggest that androgens act at the thymocyte level. The authors in discussing their results and the work of others conclude that "immune reactivity is generally enhanced in females compared to males." Females have higher immunoglobulin concentrations that make primary and secondary antibody responses, are more resistant to the induction of immunologic tolerance, have an enhanced capacity for cell mediated immunity, are more effective in the rejection of tumors, and homografts, and have enhanced responses in mixed lymphocyte culture.

An interesting article appeared in *Archives of Internal Medicine* (Vol. 137, page 905, July, 1977) by E. D. Robin entitled "Dysoxia." Robin

uses the term dysoxia to characterize disorders in which there is abnormal utilization in the tissues. Seventy percent to 85% of oxygen is said to be utilized in the electron transport chain of the mitochondria. Twenty percent of total oxygen intake is said to be used in many different chemical reactions. Robin describes some of the potential causes of dysoxia. Hypoxemia occurs when the blood stream does not carry enough oxygen from anemia or low pO_2 . Reduced oxygen delivery may be from decreased cardiac output, vascular shunts, or failure of hemoglobin to give up oxygen. Another form of dysaxia occurs when the capillary bed is structurally altered or from a decrease in capillary mass. Oxygen may not diffuse intracellularly in a proper manner and it may not reach the cell from the capillary if the interstitial fluids are abnormal. Dysoxia may obtain due to intrinsic mitochondrial disorders, and Robin discusses this in some detail; he relates that a mitochondria may be studied by electron microscope, measuring mitochondrial components and functionally; all methods have been used. The last method involves studying adenosine triphosphatae generation and breakdown in relation to oxygen — sites, blocking of reactions, etc. Hyperthyroidism is cited as an example of disordered mitochondrial oxygen usage. Other intrinsic mitochondrial diseases include Luft disease, Vera disease, mitrophenol ingestion, salicylate intoxication, etc. Hyperoxia is also a form of dysoxia; Robin mentions four types: peripheral chemoreceptor, depression, factitial, retrolental fibroplasia, and cellular oxygen poisoning. All in all, this is a most provocative article.

In another, Thomas N. James has written an interesting treatise on "Small Arteries of the Heart" (*Circulation*, Vol. 56, page 2, July, 1977). There are some interesting anatomic facts concerning the small artery. The small arteries of the right ventricle do not penetrate very deeply into the myocardium; the reverse is true in the left ventricle. The small atrial arteries are largely derived from the left circumflex artery and the right coronary artery. It is of interest that there is only one sinus node artery. The small coronary arteries anastomose in the sub-endocardial region, James states that "large volumes of transanastomotic coronary flow is almost exclusively through epicardial anastomoses." James has listed a variety of abnormalities affect-

ing small arteries including diabetes mellitus, arterio-sclerosis, amyloidosis, collagen disease, sickle cell disease, deaf long O-T syndrome, homocystinuria, TTD, high blood pressure, bacteremia, neuro-muscular disorders, cardiomyopathy, transplantation rejection, etc. James states that the small arteries "transmit all of the heart's collateral circulation." It is of interest that when collaterals take over the one of the main changes that strikes observers is their tortuosity. The clinical results of occlusion of small arteries are listed as events due to focal fibrosis, electrical instability, failure of collateral circulation. All three results may occur or any combination thereof. The question of chest pain and occluded small coronary arteries was discussed by James. He states that he has never seen typical angina pectoris from small vessel occlusion. Small vessel occlusion is said to cause substernal chest pain that many radiate, but it does not relate to physical or emotional stress — nor is it relieved by nitroglycerin. In small vessel occlusion, T-Wave inversion is said to be widespread and if there is widespread small vessel disease, cardiac hypertrophy may occur.



ANSWER—Electrocardiogram of the Month

DISCUSSION: In the vast majority of cases, limb lead reversal will yield inverted P-waves in Lead I. The marginal Q-waves in II, III, and AVF with the very prominent R-spike of 0.04 seconds duration in V_1 coupled with the history of chest pain make choice (b) tenable. Choice (c) is also within the realm of reason because of the axis, the R-spike in V_1 with R/S ratio greater than 1, the S-waves through V_6 , the radiographic findings, and the clinical history. Left posterior hemiblock is rare, and the axis needs to be far to the right, so choice (d) depends upon how far rightward the axis is deviated. The QRS duration is less than 0.10 seconds making complete RBBB a poor choice. Thus, the best choices are (b) and (c) with (d) being a distant third. There has not been agreement in our Division as to how to interpret this electrocardiogram. A vectrocardiogram might give more information but would not be likely to change the immediate therapy for this patient as presented.

MEDICINE IN THE



THE MONTH IN WASHINGTON

The first session of the 95th Congress has adjourned and in its wake leaves no major new health legislation. Touted as the "most liberal Congress of recent years" its actions on balance with respect to health legislation proved to be more conservative than liberal.

And both the Congress and the Carter White House have left the question of national health insurance (NHI) legislation next year very much up in the air. Health, Education and Welfare Secretary Joseph Califano has announced Administration proposed NHI legislation may not be ready until 1979.

Shortly thereafter, however, President Carter reassured United Automobile Workers Union leaders and Senator Edward Kennedy (D.-Mass.) that a full NHI legislative proposal would be forthcoming in 1978 — but reaffirmed his intent to first send Congress a statement of principles, followed shortly by a bill.

But meanwhile, back on the Hill, House Ways and Means Health Subcommittee (the key House committee for enactment of NHI) Chairman Dan Rostenkowski (D.-Ill.) has cautioned that spiraling health care inflation must be checked before Congress can enact a NHI program.

* * * *

In an attempt to do something about that spiraling health care inflation noted by Rep. Rostenkowski three major health organizations have agreed on a sweeping national program to curb hospital rate increases through a private sector review system aimed at encouraging hospitals to seek efficiencies and to spotlight institutions that fall down on the job.

Responding to a challenge from Congress for a voluntary alternative to the Administration's proposed Hospital Cost Containment Act for federal controls, the National Steering Committee has issued a 15-point program featuring a goal of a two percent reduction a year in the rate of increase in hospital costs.

The steering committee was formed by the American Medical Association, the American

Hospital Association (AHA) and the Federation of American Hospitals (FAH). In addition to officials of these organizations, members of the committee include officials of the Health Insurance Association of America, the Health Industry Manufacturers Association, the Blue Cross Association, consumer consultant Virginia Knauer, and the U. S. Chamber of Commerce.

At a news conference in Washington, D. C., the members of the National Steering Committee announced their agreement on the 15-point program and urged everyone involved including the public, labor, management and the government to cooperate in the attempt to brake the rise in health care spending.

Robert B. Hunter, M.D., Chairman of the AMA Board of Trustees and a member of the committee, told the news conference that physicians and hospital personnel share the public's concern over the cost problem. "We believe the problem can be solved voluntarily better than by government intervention."

Terming the meeting "historic," Michael Bromberg, Executive Director of the FAH, said the nation's hospitals will be reviewed openly and the identity of hospitals that are overspending will be made public. "In effect this will be peer review out in the open," he said.

Under the program, each state will have a steering committee composed much like the national steering group which will receive and review monthly data from hospitals on their cost-efficiency progress.

A "very realistic goal" of a two percent reduction annually in the rate of increase over the next two years was set forth by John Alexander McMahon, AHA President. This would slow the rate of increase from the current 13.7 percent to 11.7 percent next year and about 9.7 percent the following year, a level near that of the rest of the economy.

Describing the project as "a more concerted effort than any undertaken before," James H. Sammons, M.D., Executive Vice President of the AMA, said one of the key programs will be to

expand public awareness of the need for cost restraints and cost awareness on the part of consumers as well as providers.

The call for an organized private cost control effort was issued several weeks ago by Rep. Rostenkowski, Chairman of the House Ways and Means Subcommittee on Health that had been considering the Administration's plan to impose a nine percent cap on hospital revenue increases. The strong opposition from provider groups as well as some segments of labor that would be affected stymied the controversial plan this year, but Congress will still have the issue before it when it returns for its second session in January.

Here is the tentative 15-point program agreed to by the National Steering Committee:

1. Creation by state hospital and medical organizations of state level voluntary cost containment committees to develop special action programs for their states.

2. Immediate reassessment by all institutions of planned budget and charge adjustments to determine what can be done to shave costs in the short run consistent with sound medical practice.

3. Make the overall national goal a two percent annual drop in the rate of expenditure hikes for the next two years.

4. Set up guidelines for consideration by hospitals and state committees to identify hospitals where special efforts need to be made to cut costs. Under these guidelines, the top 15 percent of hospitals projecting the highest increases would be reviewed first, as well as others showing a higher than average rise in expenditures.

5. As a national goal reduce significantly the rate of the new capital investment by hospitals over the next two years. Also as a national goal — no net increase in the national total of hospital beds with certain exceptions.

6. Request that all hospital medical staffs consider ways to further tighten utilization review — consistent with sound medical practice.

7. Study and development by state committees of programs to improve productivity in hospitals by two percent a year.

8. Accelerate current trends to improve the health delivery system through multi-hospital systems, shared services, health maintenance organizations and single and multi-specialty medical groups.

9. Notify all concerned of the national pro-

gram and urge widest support and cooperation.

10. Provision of technical assistance programs by the AMA. The AHA and the FAH to assist the state committees and hospitals in carrying out the program.

11. Urge hospital suppliers to support the program and exercise restraint in pricing.

12. Establish a subcommittee on public education to actively involve everyone in the program and to explain it to the public.

13. Seek the support of the government.

14. Call upon insurance carriers, other purchasers of care, industry and organized labor to examine expanded consumer cost sharing, cost effective alternatives to existing coverages, and to carefully review any substantial expansion of existing benefits.

15. Seek a review by government of the cost impact of all existing federal regulations, to be completed by the end of next year.

The National Steering Committee is composed of the following:

AHA's Chairman-elect Samuel Tibbitts, President of the Lutheran Hospital Society of Southern California; FAH's President-elect Andrew W. Miller, Senior Vice President, Hospital Corporation of America; Dr. Hunter of the AMA; Health Insurance Association of America President Robert Froehlke; Harold Buzzell, President of the Health Industry Manufacturers Association; Blue Cross Association President Walter McNerney; Virginia Knauer, former Presidential Special Assistant on Consumer Affairs; and C. S. Tsowas, General Electric Corp.'s consultant for Insurance Plans and Corporate Employee Relations representing the U.S. Chamber of Commerce.

* * * *

The House has unanimously asked the Carter Administration to set aside or relax many of its controversial health planning guidelines.

Published in the *Federal Register* in September the guidelines are part of a campaign to check health cost inflation. The Congressional turn down of the HEW proposals was another painful example of the Administration's poor batting average on the Hill.

Congress rejected the guidelines by a 357 to 0 vote on a resolution introduced by Rep. Berkley Bedell (D.-Iowa).

Objections to the proposed guidelines that

swarmed into the Congress and HEW fell into three major areas. These are:

- **That the proposed guidelines, as currently drafted, might force small rural or community hospitals to close;
- **That the standard applicable to obstetrical units may be too strict;
- **That the guidelines will tend to take decision-making out of local hands.

HEW officials have promised to ease the proposed guidelines in a final version due early in 1978.

Bertram Brown, M.D., long-time head of the National Institute of Mental Health, has been dismissed by HEW Secretary Joseph Califano on grounds that "new blood" is needed to "invigorate institutions."

Dr. Brown, 46, is a Democrat who was appointed NIMH Director when Lyndon Johnson was President and survived the eight years of Republican Administrations. The post theoretically was made immune from politics by Congress. Dr. Brown protested his ouster as politicizing the Directorship.

Mental health has been one of the chief interests of President Carter's wife, Rosalyn, and his chief health adviser, Peter Bourne, M.D. Dr. Brown was reported to be close to Mrs. Carter

and Dr. Bourne, the underlying reason for Califano's action was not clear.

* * * *

The American Medical Association has been praised by Rep. Romano Mazzoli (D.-Ky.) for its "enthusiastic, nationwide efforts" to promote awareness of childhood diseases and the need for immunization. In a statement for the *Congressional Record*, Mazzoli noted one feature of the campaign is a hopscotch court with the squares labeled with disease names and with immunization in sky-blue at the top of the game. The AMA and its Auxiliary have developed a kit containing background material on immunization, model press releases, model editorials, commercials and puppet shows as well as a full-size stencil for the hopscotch courts, the lawmaker noted.

* * * *

MEMORIAL FUND FOR DR. HARVILLE

A memorial fund in honor of the late Dr. William E. Harville of Little Rock has been established at the Baptist Medical Center. Dr. Harville died January 1, 1978. Donations to the Dr. W. E. Harville Memorial Cancer Research Fund can be sent to Mr. H. Terry Lynn, Administrator, Baptist Medical Center, 9600 West 12th Street, Little Rock, Arkansas 72201.



PERSONAL AND NEWS ITEMS

DR. MASSEY SPEAKS

Dr. J. Y. Massey of Mountain Home recently spoke to the Baxter General Hospital Auxiliary on the intraocular lens implant method of treating cataract patients.

HOSPITAL OFFICERS ELECTED

Boone County Hospital, Harrison. Dr. Charles Ledbetter, chief of staff; Dr. Thomas Simpson, vice chief of staff; Dr. Donald Butts, secretary; Dr. R. H. Langston, medical staff liaison officer; and Dr. Van Smith, medical staff liaison officer-elect.

White River Medical Center, Batesville. Dr. James M. Stalker, chief of staff; Dr. Bob Smith,

vice chief of staff; and Dr. Nathan E. Strickland, secretary. Chiefs of service include Drs. Paul Baxley, coronary care unit-medicine; Jim Lytle, obstetrics; Chaney Taylor, family medicine; and D. Charles McClain, radiology.

Sparks Regional Medical Center, Fort Smith. Dr. Homer Ellis, chief of staff; Dr. Peter Irwin, vice chief; and Dr. Harold M. Mings, secretary. Medical services chiefs and vice chiefs are: Anesthesia — Dr. Norman Westermann, chief; Cardiology — Dr. John R. Pope, chief; Emergency Room — Dr. Kent Alexander, chief; Family Practice — Dr. R. J. Thompson, chief; Dr. Kemal Kutait, vice chief; Medicine — Dr. W. F. Turner, chief; Dr. Eldon Pence, vice chief; Obstetrics -

Gynecology — Dr. William Tate, chief; Orthopedics — Dr. James Buie, chief; Dr. John Wide-man, vice chief; Pathology — Dr. Gene Girkin, chief; Psychiatry — Dr. Joe H. Dorzab, chief; Pediatrics — Dr. John Watts, chief; Radiology — Dr. Calvin Cassady, chief; Surgery — Dr. Donald Patrick, chief; Dr. Sam Landrum, vice chief; Urology — Dr. Gerald Wahman, chief.

Crittenden Memorial Hospital, West Memphis. Dr. Glenn P. Schoettle, chief of staff; Dr. Wade Westbrook, secretary.

PHYSICIAN CANDIDATES

Five physicians have announced their candidacy for school board positions in their communities. They are: Dr. James M. Carter of Russellville, Dr. T. A. Feild, III, of Fort Smith, Dr. Michael N. Moody of Salem, Dr. James F. Rogers of Jonesboro, and Dr. Joe Bill Wilson of Harrison.

DR. NEFF RELOCATES

Dr. Michael D. Neff has relocated in Jonesboro where he is associated with St. Bernard's Regional Medical Center in Emergency Medicine. Dr. Neff was formerly a general practitioner in Walnut Ridge.

SCIENTIFIC PUBLICATION TRANSLATED

"Ocular Differential Diagnosis," Second Edition, by Dr. F. Hampton Roy, a Little Rock Ophthalmologist, has been translated and published in Spanish and Portuguese.

DR. EDDS AWARDED

Dr. Millard Edds of Van Buren was the recipient of the Chamber of Commerce's "Outstanding Citizen" plaque which was presented recently at a banquet. Dr. Edds has practiced general medicine in Van Buren since 1952.

DOCTORS PRESENT PAPER

A scientific paper entitled "O.P.S.C. Improving the Delivery of Otolaryngological Surgical Care," by Drs. Ted Bailey, James Pappas, and Ellery Gay, all of Little Rock, was read by Dr. Bailey at the recent Southern Section Meeting of the American Laryngological, Rhinological, and Otological Society Incorporated in Houston, Texas. "O.P.S.C." refers to Outpatient Surgical Center.

DR. WILSON HONORED

Dr. John H. Wilson of Magnolia was recently honored by the Southern Arkansas University board of trustees by resolution of appreciation

and a proclamation citing him as Board Member Emeritus. Dr. Wilson served as a board member for thirty-three years and was chairman from 1961 to 1973. During the 1977 spring graduation ceremonies he was awarded the Distinguished Alumni Award.

DR. BAKER RELOCATES

Dr. Ronald L. Baker has joined the staff at Searcy Medical Center as a Family Physician. Dr. Baker formerly practiced in North Little Rock.

WALNUT RIDGE GAINS PHYSICIANS

Two surgeons have located in Walnut Ridge. Dr. Alberto Angles is associated with the Lawrence County Family Clinic. Dr. Angles is a general surgeon and previously practiced in Cleveland, Oklahoma.

Dr. Anibal R. Hadad has joined Dr. Ralph Joseph for six months service, after which he will begin a vascular surgery fellowship.

DR. CULP AUTHORS BOOK

Dr. William C. Culp was a recent guest on a Fort Smith television program. He discussed his new book, "Shallow Water Sailing."

DR. RODGERS SPEAKS

Dr. Porter Rodgers, Jr., of Searcy, was the featured speaker at a recent meeting of the White County Unit of the American Cancer Society.

DR. CROW HONORED

Dr. Merl Crow was recently honored by the Warren Chamber of Commerce as the Bradley County "Citizen of the Year." Dr. Crow has been in General Practice in Warren for thirty-seven years.

DR. DREWERY GUEST SPEAKER

Dr. Lawrence E. Drewery spoke recently at a public forum in Camden. His topic was "The Nationalization of Health Insurance and Its Impact on the Elderly."

DR. GALBRAITH ELECTED CHAIRMAN

Dr. Robert C. Galbraith, a Little Rock neurologist, has been elected chairman of the Arkansas Chapter of the National Multiple Sclerosis Society.

DR. DUNN HONORED

Dr. Tom L. Dunn was recently honored with a retirement party by the Calhoun County Hospital in Hampton. Dr. Dunn was presented an engraved plaque commemorating his twenty-five years of service to the community.

DR. WEBER SPEAKS

Dr. Edward R. Weber of Little Rock was a featured speaker at a "Future Health Care in Arkansas" conference at the University of Central Arkansas Health Sciences Center in Conway. He spoke on "Reconstructive Surgery of the Arthritic Hand." Dr. Weber is head of the Sec-

tion of Hand Surgery at the University of Arkansas College of Medicine.

DR. DAVIS SERVES

Dr. James Davis of Mount Ida is serving as medical advisor for the Montgomery County Chapter of the American Heart Association.



PROCEEDINGS OF SOCIETIES

FIRST COUNCILOR DISTRICT MEETING

First District Councilors, Dr. John B. Kirkley and Dr. Merrill J. Osborne, held a meeting for the members of their district on February 7, 1978, at the Jonesboro County Club.

The program was to consist of Dr. Morris M. Henry, State Senator from Fayetteville, and Mr. Ken LaMastus of the Society staff, who were to discuss the need for physician involvement in the legislative process. Dr. Henry was unable to attend due to the inclement weather.

Mr. LaMastus discussed the need for physicians to become involved in political activities during this landmark year in Arkansas politics. He pointed out that the people of Arkansas will elect a United States senator, two United States representatives, and governor this year. It was also pointed out the importance of supporting candidates for the State Senate and House of Representatives because these are people who pass the laws that affect the physicians of Arkansas.

Mr. LaMastus reviewed some of the bills introduced in the last legislative session that were of danger to the practice of medicine and several issues that will probably come up in the next session of the Arkansas General Assembly.

Approximately one hundred people consisting of physicians and spouses attended the meeting.

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SEVENTH COUNCILOR DISTRICT MEETING

Dr. Robert McCrary of Hot Springs, Senior Councilor for the Seventh District, arranged an excellent, timely program for members in his district. The meeting was held February 11, 1978, at DeGray Lodge, DeGray State Park.

The Saturday morning program was devoted to topics of a socio-economic nature.

Mr. Paul Schaefer, Executive Director of the Arkansas Foundation for Medical Care, reviewed the program of the Professional Standards Review Organization and its effect on the practice of medicine in the State. Dr. Robert Benafield, Medical Director of Arkansas Blue Cross-Blue Shield, discussed the project for change to one locality for payment of physicians' fees under Medicare. Dr. Morris Henry, State Senator from Fayetteville, discussed the need for physician involvement in the legislative process. Drs. Ken Lilly and Kemal Kutait, both of Fort Smith, discussed the Arkansas Medical Political Action Committee and urged physician participation in its activities. Mr. Eugene Warren, Society legal counsel, spoke on the proposed malpractice amendment to the State Constitution. Dr. Joe Verser, Secretary of the Arkansas State Medical Board, had been scheduled to review the role of physicians' assistants, but was unable to be present; Dr. McCrary and other panelists reviewed the status of physicians' assistants.

The Saturday afternoon program was presented in cooperation with the Department of Continuing Education of St. Joseph's Mercy Medical Center in Hot Springs and qualified for four hours of Category I credit. The scientific program was presented by members of the staff of St. Joseph's, as follows:

"The Use of Systematic Computerized Axial Tomography in Family Practice," Dr. M. R. Springer, Jr., Department of Radiology.

"The Selection of Patients for Coronary Angi-

ography," Dr. K. K. Jayaraman, Department of Cardiology.

"The Recognition and Prevention of Strokes," Dr. Surinder N. Gupta, Department of Neurosurgery.

"Newer Laboratory Procedures and Their Significance," Dr. William K. Germany, Director of Clinical Laboratory.

"The Use of the General Hospital for the Treatment of the Psychiatric Patient," Dr. Eugene Waterman, Department of Psychiatry.

"The Management of the Abnormal Pap Smear," Dr. Robert F. McCrary, Department of Gynecology.

A cocktail party Saturday evening featured oysters on the half shell, shrimp, and hot hors d'oeuvres. The cocktail hour and the dinner following provided an opportunity for renewing acquaintances and discussing the many problems facing physicians.

DeGray Lodge offered nice facilities and good food in a beautiful setting. Those members in the district who were unable to attend missed an outstanding meeting. A similar program is planned for next year and members are urged to participate.

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NINTH COUNCILOR DISTRICT

The Ninth Councilor District meeting was held on February 14, 1978, in conjunction with the regular monthly meeting of the Boone County Medical Society. The meeting was called to order by Dr. Rhys Williams, President of the Ninth Councilor District, Arkansas Medical Society. Dr. Richard Kuharich, President of the Boone County Medical Society, presented an award for recognition of distinguished service by the American Medical Association to Dr. Mahlon Maris. This was for outstanding efforts on the Young Physicians Committee.

Introduction of the honored guests was made: Dr. Morris Henry, Senator, Seventh District; Dr. C. C. Long, Executive Vice President, Arkansas Medical Society; Dr. Robert Benafield, Medical Director, Arkansas Blue Cross-Blue Shield.

Dr. Henry spoke to express the need for all physicians to actively participate in the political processes.

Dr. Long spoke about the current status of various legislation and reiterated Dr. Henry's feelings for the need for greater input from the practicing physicians.

Dr. Benafield gave a resume of the status of the single locality rule as it applies to payment of benefits.

Election of officers for the 1978-79 year for the Ninth Councilor District, Arkansas Medical Society, was held. Dr. Harmon Lushbaugh was elected president by acclamation. Dr. Tom Whiting was elected Secretary-Treasurer, also by acclamation.

The meeting was adjourned by Dr. Kuharich.



PULASKI COUNTY ADDS MEMBERS

The Pulaski County Medical Society has accepted into its membership the following new resident members:

DR. DOUGLAS M. ROGERS, a native of Portland, Oregon, is an Anesthesiology resident at the University of Arkansas Medical Center. Dr. Rogers received his pre-medical education at the University of Arkansas in Little Rock where he received his B.S. degree, and Arkansas State Teachers College in Conway, graduating with a M.S. degree. He is a 1976 graduate of the University of Arkansas College of Medicine.

DR. JAN W. SCRUGGS was born in Little Rock and received his pre-medical education at the University of Arkansas in Fayetteville. He was graduated from the University of Arkansas College of Medicine in 1974. Dr. Scruggs is in Ophthalmology residency training at the University of Arkansas Medical Center.

DR. WILLIAM J. SMEAD is a native Arkansan. He was born in Camden, received his Bachelor of Arts degree from the University of Arkansas and was graduated from the University of Arkansas College of Medicine in 1970. Dr. Smead is a resident in Ophthalmology at the University of Arkansas Medical Center.

SEBASTIAN COUNTY'S NEW MEMBERS

Sebastian County Medical Society has added three new members to its membership roll. They are:

DR. MARVIN E. MUMME, a native of San Antonio, Texas. Dr. Mumme received his pre-medical education at the University of Texas and was graduated from the University of Texas Southwestern Medical School in Dallas, Texas, in 1970. He received his internship and residency training in Orthopaedic Surgery at Parkland Memorial Hospital in Dallas. Dr. Mumme served in the United States Air Force and was stationed in Colorado Springs, Colorado.

Dr. Mumme is associated with the Department of Orthopaedics at Holt-Krock Clinic in Fort Smith.

DR. PAUL A. PRADEL, who was born in New Orleans, Louisiana. He received his Bachelor of Arts degree in Biology at Rice Institute, Houston, Texas, in 1971, and his M.D. degree from Tulane University School of Medicine, New Orleans, Louisiana, in 1974. Dr. Pradel was in Internal

Medicine internship and residency training at Baylor College of Medicine in Houston, Texas.

He began the practice of Internal Medicine at 314 North Greenwood in Fort Smith in January 1977, in association with Drs. McDonald Poe and Eldon D. Pence.

DR. WILLIAM SHERRILL, JR., who was born in Fairmont, Nebraska. Dr. Sherrill received his B.A. degree from the University of Texas in Austin in 1966. He was graduated from the University of Texas Southwestern Medical School in Dallas in 1970 and interned at Parkland Memorial Hospital in Dallas. In 1972, Dr. Sherrill completed one year of General Surgery residency training at Methodist Hospital in Dallas. After serving two years in the United States Air Force, Dr. Sherrill completed three years of Orthopaedic Surgery residency training at Baylor College of Medicine at Houston, Texas. He was a teaching assistant at Baylor.

Dr. Sherrill is associated with the Department of Orthopaedics at Holt-Krock Clinic in Fort Smith.

**THINGS****TO
COME****M. D. ANDERSON/UNIVERSITY OF TEXAS
CONFERENCE**

The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute will present a Clinical Conference on Cancer of the Genitourinary Tract on November 2-3, 1978. The 1978 conference will focus on issues of diagnosis, staging, and therapy as they relate to the critical and sometimes controversial therapies of the multiple stages of urological malignancies.

This medical education offering meets the criteria for fourteen hours in Category I of the Physician's Recognition Award of the American Medical Association and is acceptable for fourteen hours by the American Academy of Family Physicians.

For further information write: George R. Blumenschein, M.D., Office of Education, The University of Texas System Cancer Center, M. D.

Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas 77030.

**OBITUARY****DR. HARRY M. WHITE**

Dr. Harry M. White of Rogers died January 14, 1978, at the age of fifty-eight. Dr. White was born October 25, 1919, in Lawrence, Kansas, and was a 1945 graduate of the University of Kansas School of Medicine. He served his internship at the United States Naval Hospital in Jacksonville, Florida, following which he served on active duty with the United States Navy. Dr. White began practicing in Rogers in 1949 at the Rogers Medical Center. He was a member of the staff at Rogers Memorial Hospital and had also served as chief of staff. Dr. White was a member of the Arkansas Academy of Family Physicians and various civic organizations in Rogers.

Dr. White is survived by his three sons, Harris, John Mark, and Walter Lee, and a daughter, Charla, all of Rogers.

CONVENTION SECTION

Program For Annual Meeting

April 16-19, 1978

Arlington Hotel

Hot Springs

Arkansas Medical Society

CONVENTION OFFICIALS

CHAIRMAN: James A. Wellons, M.D., Little Rock

CO-CHAIRMAN: W. Payton Kolb, M.D., Little Rock

PROGRAM COMMITTEE:

Asa Crow, M.D., Paragould
Joseph Robinette, M.D., Pine Bluff
G. Thomas Jansen, M.D., Little Rock
Gilbert S. Campbell, M.D., Little Rock
Ken Lilly, M.D., Fort Smith
W. F. Turner, M.D., Fort Smith
Wendell Ross, M.D., Fort Smith
George H. Collier, Jr., M.D., Paragould
Charles A. Taylor, M.D., Batesville

DISTRICT HOSTS: FIRST COUNCILOR DISTRICT

John B. Kirkley, M.D., Councilor
Merrill J. Osborne, M.D., Councilor

SCIENTIFIC EXHIBITS CHAIRMAN: J. Larry Lawson, M.D., Paragould

MEMORIAL SERVICE CHAIRMAN: Carl Wenger, M.D., Little Rock

CONTINUING MEDICAL EDUCATION CREDIT

As an organization accredited for continuing medical education, the Arkansas Medical Society Committee on Scientific Programs certifies that this continuing medical education activity meets the criteria for $9\frac{3}{4}$ credit hours in Category I of the Physician's Recognition Award of the American Medical Association.

* * * * *

Program is acceptable for $9\frac{3}{4}$ prescribed hours by the American Academy of Family Physicians.

General Information

REGISTRATION

The registration desk will be located in the mezzanine lobby area of the Arlington Hotel and will be open as follows:

Sunday,	April 16	8:00 a.m. to 5:00 p.m.
Monday,	April 17	8:00 a.m. to 5:00 p.m.
Tuesday,	April 18	8:00 a.m. to 5:00 p.m.
Wednesday,	April 19	8:00 a.m. to 11:00 a.m.

Registration cards and badges will be prepared in advance for the officers of the State Society and for the county society delegates. Delegates are requested to present credentials in proper form when registering.

All members and visitors are required to register, as admission to all sessions will be by badge only. Bring your 1978 membership card to facilitate registration.

There will be a \$5.00 registration fee for non-member physicians.

Tickets for the Tuesday night banquet may be purchased at the registration desk.

TELEPHONE SERVICE

As a convenience to physicians in attendance at the meeting, arrangements have been made for telephone service at the Society convention registration desk. It is suggested that you give the following information to your office personnel so that you may be contacted in case of an emergency:

Arkansas Medical Society Convention Registration Desk telephone number (direct line) 624-3831.



Memorial Service

A joint Society-Auxiliary Memorial Service will be held on Sunday, April 16, at 1:00 p.m. in the Ballroom of the Arlington Hotel.

W. Payton Kolb, M.D., President of the Society, will preside at the service and read the names of deceased members of the Society. Mrs. Kemal Kutait, President of the Auxiliary, will read the names of deceased members of the Auxiliary. Carl Wenger, M.D., of Little Rock, will make the "Memorial Address."

IN MEMORIAM

SOCIETY MEMBERS

Dr. William J. Butt, Fayetteville	Dr. William K. Hill, Elaine
Dr. James R. Callaway, Benton	Dr. Robert H. Hood, Tyler, Texas
Dr. A. D. Cathy, El Dorado	Dr. Lawrence L. Thompson, Little Rock
Dr. Richard B. Dickinson, DeQueen	Dr. Harry M. White, Rogers
Dr. Leroy E. Ellison, Warren	Dr. Robert H. Whitehead, Sr., DeWitt
Dr. William E. Harville, Little Rock	

AUXILIARY MEMBERS

Mrs. W. F. Adams, Van Buren	Mrs. Haynes G. Jackson, Hot Springs
Mrs. C. A. Archer, Little Rock	Mrs. Virgil N. Kennedy, Fort Smith
Mrs. J. E. Beasley, Blytheville	Mrs. Robert L. Johnson, Star City
Mrs. Arless A. Blair, Fort Smith	Mrs. J. Sheppard Moore, Arkadelphia
Mrs. Oliver W. Clark, Pine Bluff	Mrs. P. H. Phillips, Ashdown
Mrs. James H. Chestnutt, Hot Springs	Mrs. Ewing C. Reed, Jr., Little Rock
Mrs. R. C. Dickinson, Horatio	Mrs. W. James Stocker, Little Rock
Mrs. Paul M. Fulmer, Little Rock	Mrs. J. H. Turner, Little Rock
Mrs. Glenn G. Hairston, Prescott	Mrs. Deane D. Wallace, Little Rock
Mrs. Thomas H. Hickey, Morrilton	

Benediction: Reverend Ed McDonald, Chaplain, Baptist Medical Center, Little Rock.

COUNCIL RECEPTION

The Council will host a reception for all members, spouses, and guests of the Society at 6:30 p.m. on Sunday, April 16, in the Ballroom of the Arlington. This reception provides an opportunity for information discussion with your officers and you are urged to attend.

ARKANSAS STATE MEDICAL BOARD

The Arkansas State Medical Board will hold an all day meeting, including luncheon, on Monday, April 17, at the Arlington Hotel.

ARKANSAS STATE BOARD OF HEALTH

The Arkansas State Board of Health will have a luncheon meeting at 12:00 noon on Monday, April 17, in the Arlington Hotel.

BLUE CROSS-BLUE SHIELD PARTY

Arkansas Blue Cross-Blue Shield will host a cocktail party for members of the Society and their guests at 6:30 p.m. on Monday, April 17, in the Ballroom of the Arlington Hotel.

PRAYER BREAKFAST

The Committee on Medicine and Religion will sponsor a Prayer Breakfast at 8:00 a.m. on Tuesday, April 18, for all members of the Society and the Auxiliary. Dr. Wendell Ross of Fort Smith will be breakfast speaker. Tickets for the breakfast may be purchased at the Society registration desk.

TUESDAY EVENING FUNCTIONS

A cocktail party beginning at 6:00 p.m. in the North Parlor of the Arlington will precede the Inaugural Banquet on Tuesday evening.

The President's Inaugural Banquet will begin at 7:00 p.m. on Tuesday, April 18, in the Ballroom of the Arlington. W. Payton Kolb, M.D., Little Rock, 1977-78 president, will be master of ceremonies. George F. Wynne, M.D., of Warren, will be installed as the 103rd president of the Society.

Entertainment at the banquet will be by the Ouachi-Tones of Ouachita Baptist College at Arkadelphia.

PAST PRESIDENTS' BREAKFAST

The traditional breakfast for former presidents of the Arkansas Medical Society will be held at 7:30 a.m. on Wednesday, April 19, in the Arlington Hotel.

FIFTY YEAR CLUB BREAKFAST

The Society will host a breakfast for members of the Fifty Year Club at 7:30 a.m. on Wednesday, April 19, in the Arlington Hotel. Members of the Fifty Year Club may make reservations for the breakfast at the Society's convention registration desk.

Dr. Curtis W. Jones of Benton is president of the Fifty Year Club and Dr. Eva F. Dodge of Little Rock is secretary.



Scientific Exhibits

J. Larry Lawson, M.D., Chairman of the Scientific Exhibits, has arranged a number of interesting scientific exhibits. Exhibits will be located in an area adjacent to the scientific lectures. All members are encouraged to visit the exhibits as they are an integral part of the scientific program.

The following exhibits will be on display:

"Total Hip Replacement"

D. Bud Dickson, M.D., Little Rock

"Problems of Otolaryngology"

Reed Thompson, M.D.

"Rehabilitation of the Head and Neck Patient"

James Y. Suen, M.D., Little Rock

"Carpal Tunnel Syndrome"

Kenneth Jones, M.D., Little Rock

"Pediatrics"

Florence Char, M.D., Department of Pediatrics, University of
Arkansas College of Medicine, Little Rock

"Newer Forms of Abdominal Imaging"

Doyne Dodd, M.D., Little Rock

"Cosmetic Surgery in an Outpatient Surgery Center"

Ellery C. Gay, M.D., Little Rock

"Rhinoplasty"

J. F. Kyser, M.D., Little Rock

"Hearing Aids"

Ted Bailey, M.D., Little Rock

"Carcinoma of the Lung and Immunotherapy"

Jacob Amir, M.D., Little Rock

"Mammoplasty"

Harry Hayes, M.D., Little Rock

"Toxic Retinopathy"

Sloan Wilson, M.D., Little Rock

"Arthritis Foundation"

Basil Smith, Little Rock

"Social Security"

Ben Dewbre, M.D., Little Rock

"Continuing Education"

Neil Sims, M.D., University of Arkansas College of Medicine,
Little Rock

"Area Health Education Center"

Paul Woodworth, University of Arkansas College of Medicine,
Little Rock

"Rehabilitation of the Stroke and Head Injury Patients"

Doctors Bowker and McKinley, Little Rock

"Problems in Orthopedics"

Carl Nelson, M.D., Department of Orthopaedics, University of
Arkansas College of Medicine, Little Rock

Business Sessions

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society will meet as follows:

Sunday, April 16	10:00 a.m.
Monday, April 17	7:30 a.m.
Tuesday, April 18	7:00 a.m.
Wednesday, April 19	8:30 a.m.
Wednesday, April 19	Immediately following adjournment of the House of Delegates (brief re-organizational meeting and group photograph of new officers)

The voting members of the Council are: the councilors, the president, the first vice president, president-elect, secretary and treasurer. The speaker, vice speaker, and past presidents are members ex-officio without vote.

HOUSE OF DELEGATES

The opening session of the House of Delegates of the Arkansas Medical Society will begin at 1:30 p.m. on Sunday, April 16, in Room "C" of the Conference Center on the Mezzanine floor of the Arlington. Speaker of the House of Delegates, Amail Chudy, M.D., will preside.

All items of business to be considered by the House must either be printed in the March issue of the Journal or submitted to the headquarters office in writing twenty days prior to the meeting. Any new business proposed during the sessions of the House must have two-thirds vote of attending delegates for introduction.

Items of business will be referred by the Speaker of the House of Delegates to one of three reference committees. Open hearings on those items of business will be held by the reference committees following adjournment of the House. All members of the Society are welcome to attend the meetings of the reference committees and to express views on the various reports, resolutions, etc.

A G E N D A

FIRST MEETING, HOUSE OF DELEGATES

1:30 p.m., Sunday, April 16

1. Call to Order
2. Roll Call of Delegates
3. Report of Credentials Committee
4. Introduction of Guests:
 - Mrs. Manuel A. Bergnes, President-elect of the American Medical Association Auxiliary
 - Mrs. Bruce Martin, President of the Auxiliary to the Southern Medical Association
 - Mrs. Kemal Kutait, President, Arkansas Medical Society Auxiliary
 - Mrs. Walter Mizell, President-elect, Arkansas Medical Society Auxiliary
5. Address by W. Payton Kolb, M.D., Little Rock, President, Arkansas Medical Society.
6. Adoption of minutes of the 101st Annual Session as published in the June 1977 issue of the Journal of the Arkansas Medical Society.
7. Adoption of minutes of the special session of the House held November 27, 1977, as published in the January 1978 issue of the Journal of the Arkansas Medical Society.
8. Report from the Chairman of the Council, John P. Burge, M.D.

9. Report of Committees
(Reports published in the March issue of the Journal may be amended by committee chairmen. All reports will be referred to the reference committees.)
10. Old Business
The proposed revision of the Society's Constitution and By-laws will be presented to the House for final vote. The proposal was approved on first reading by the House at the 1977 meeting.
11. New Business
Resolution submitted by the Council opposing Section 227 of Public Law 92-603, which provides for differential payment for the services of physicians rendered at teaching hospitals.
12. Announcements of Vacancies on State Boards
13. Selection of Society Nominating Committee for 1978-79 Society Officers
(Councilor district meetings are held on the floor of the House for selection of representatives from each district for the Nominating Committee.)
14. Adjournment

A G E N D A
FINAL MEETING, HOUSE OF DELEGATES
10:00 a.m., Wednesday, April 19

1. Call to Order
2. Report of the Nominating Committee
3. Elections

Society Officers:

President-elect
First Vice President
Second Vice President
Third Vice President
Treasurer
Secretary
Speaker of the House of Delegates
Vice Speaker of the House of Delegates
Councilors (one from each of the ten councilor districts)

Councilors whose terms expire are:

1. John B. Kirkley, M.D., Jonesboro
2. John E. Bell, M.D., Searcy
3. L. J. P. Bell, M.D., Helena
4. John P. Burge, M.D., Lake Village
5. J. B. Jameson, Jr., M.D., Camden
6. C. Lynn Harris, M.D., Hope
7. Robert F. McCrary, M.D., Hot Springs
8. William S. Orr, Jr., M.D., Little Rock
9. Rhys A. Williams, M.D., Harrison
10. Kemal Kutait, M.D., Fort Smith

American Medical Association Delegate and Alternate:

Delegate to the American Medical Association (term of Joe Verser, M.D., Harrisburg, expires December 31, 1978)

Alternate Delegate to the American Medical Association (term of A. E. Andrews, M.D., Texarkana, expires December 31, 1978)

Vacancies on State Boards

State Medical Board:

Term of H. Elvin Shuffield, M.D., Little Rock, Fifth Congressional District, expires December 31, 1978.

State Board of Health:

Term of W. J. Ketz, M.D., Batesville, Second Congressional District, expires December 31, 1978.

Term of William C. Whaley, M.D., Warren, Fourth Congressional District, expires December 31, 1978.

4. Reports of Reference Committees:

Committee No. 1: Ken Lilly, M.D., Chairman

Committee No. 2: R. Jerry Mann, M.D., Chairman

Committee No. 3: A. Henry Thomas, M.D., Chairman

5. Supplemental Report of the Council: John P. Burge, M.D., Chairman

6. New Business

7. Adjournment

REFERENCE COMMITTEES

Reference Committees are appointed by the Speaker of the House of Delegates to consider the various reports and resolutions. Reports published in the March issue of the Journal, as well as any reports and resolutions presented at the first meeting of the House on April 16, will be referred by the Speaker to the reference committees. The committees will hold open hearings at 3:30 p.m. on Sunday, April 16, to give all members an opportunity to present their views on the various items of business. Following the open hearings, the reference committees will hold executive sessions for the purpose of preparing recommendations and reports for the House of Delegates. Reports of the Reference Committees will be acted upon by the House at the Wednesday session.

Members of the Reference Committees are:

Reference Committee Number 1:

Ken Lilly, M.D., Fort Smith, Chairman

Raymond V. Biondo, M.D., North Little Rock

Gaither C. Johnston, M.D., Hot Springs

Banks Blackwell, M.D., Pine Bluff

Medical Student Observer: Mr. Michael L. Lazar, Jr.

Reference Committee Number 2:

R. Jerry Mann, M.D., Arkadelphia, Chairman

John Vinzant, M.D., Fayetteville

Frank Westerfield, M.D., Little Rock

Donald L. Duncan, M.D., Texarkana

Medical Student Observer: Mr. Todd Gammill

Reference Committee Number 3:

A. Henry Thomas, M.D., Little Rock, Chairman

John A. Delamore, M.D., Fordyce

Dwight Gray, M.D., Marianna

George Warren, M.D., Smackover

Medical Student Observer: Mr. James L. English

STATE BOARD VACANCIES

Arkansas State Medical Board

A vacancy occurs in the Fifth Congressional District position on the Arkansas State Medical Board. Members from the counties in the district are urged to meet immediately following adjournment of the House of Delegates meeting on Sunday to vote for nominees. Nominations should be reported to the convention registration desk (only one nominee required). Elvin Shuffield, M.D., of Little Rock, is currently serving a term which expires December 31, 1978, and he is eligible for reappointment. Counties in the Fifth Congressional

District are: Conway, Faulkner, Perry, Pope, Pulaski, and Yell.

Arkansas State Board of Health

Vacancies occur in the Second and Fourth Congressional District positions on the Arkansas State Board of Health. Members from the counties in the districts are urged to meet immediately following adjournment of the House of Delegates meeting on Sunday to vote for nominees. Nominations should be reported to the convention registration desk (three required for each position). Members presently serving terms expiring December 31, 1978, are listed below with the counties in the District:

Second District —

W. J. Ketz, M.D., Batesville.

Counties in District: Cleburne, Fulton, Independence, Izard, Jackson, Lawrence, Monroe, Prairie, Randolph, Sharp, Stone, White, and Woodruff.

Fourth District —

William C. Whaley, M.D., Warren.

Counties in District: Ashley, Bradley, Calhoun, Clark, Columbia, Hempstead, Howard, Lafayette, Little River, Miller, Montgomery, Nevada, Ouachita, Pike, Polk, Sevier, and Union.

ARKANSAS FOUNDATION FOR MEDICAL CARE

The Arkansas Foundation for Medical Care will meet on Wednesday, April 19, at 9:15 a.m., in Room "C" of the Conference Center of the Arlington Hotel. The meeting is open to all physicians but only members of the Foundation may vote on items of business.



Scientific Program

GENERAL SESSION

ARKANSAS MEDICAL SOCIETY

PROGRAM THEME:

"The Recognition and Evaluation of Patients with Pulmonary Disease"

Monday Morning, April 17

Presiding: Ken Lilly, M.D., Fort Smith, First Vice President

- | | |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:30-10:00 | "Dyspnea and the Evaluation of the Dyspneic Patient"
James Adamson, M.D., Pulmonary and Renal Associates, Little Rock |
| 10:00-10:45 | "Arterial Blood Gases"
John C. Schultz, M.D., Little Rock Diagnostic Clinic, Little Rock |
| 10:45-11:00 | Intermission |
| 11:00-11:45 | "Use of Spirometry to Evaluate Patients with Pulmonary Disease"
N. F. Rector, M.D., Pulmonary and Renal Associates, Little Rock |
| 11:45-12:30 | "Choice of Antibiotic Therapy for Acute Bacterial Pneumonia Before Cultures are Known"
Robert S. Abernathy, M.D., Department of Internal Medicine, University of Arkansas College of Medicine |

Monday Afternoon, April 17

- Presiding: R. Jerry Mann, M.D., Arkadelphia, Second Vice President
- 1:30- 2:30 "New Concepts and Treatment in Bronchial Asthma"
William L. Mason, M.D., Pulmonary Associates, Little Rock
- 2:30- 3:00 Intermission
- 3:00- 4:00 "New Concepts in Recognition and Management of Patients with
Pulmonary Emboli"
Jerry R. Stewart, M.D., Cooper Clinic, Fort Smith
- 4:00- 5:00 Panel Discussion

Tuesday Morning, April 18

- Presiding: A. Henry Thomas, M.D., Little Rock, Third Vice President
- 9:00-10:00 "Transient Ischemic Attacks"
Hiram B. Curry, M.D., Professor and Chairman, Department of
Family Practice, Medical University of South Carolina, Charles-
ton, South Carolina
- 10:00-10:20 Intermission
- 10:20-11:20 "Primary Immunodeficiency Diseases Leading to Chronic Pulmo-
nary Disease"
Rebecca H. Buckley, M.D., Professor of Pediatrics, Duke Uni-
versity School of Medicine, Durham, North Carolina
- 11:20-12:20 "The Significance and Management of Childhood Urinary Infec-
tions"
John Woodard, M.D., Chairman, Department of Urology, Emory
University School of Medicine, Atlanta, Georgia



Group and Specialty Meetings

Monday, April 17

The *Alan Cazort Allergy Society of Arkansas* will hold a luncheon meeting at 12:00 noon on Monday, April 17, at Coy's Steak House in Little Rock. Rebecca Buckley, M.D., Professor of Pediatrics, Duke University School of Medicine, Durham, North Carolina, will speak on "Allergy and Immuno-
deficiency."

The *Arkansas Society of Pathologists* will meet at 12:00 noon on Monday, April 17, at the Arlington Hotel. Guest speaker will be Mr. Alfred S. Ercolano, Executive Director of the Washington Office of the College of American Pa-
thologists, who will speak on current legislative areas relating to pathology and laboratory medicine.

Tuesday, April 18

The *Ophthalmology Section, Arkansas Medical Society*, will meet at 9:00 a.m., on Tuesday, April 18, in the Arlington Hotel for a luncheon, business meeting, and program. Guest speakers will be Ramesh Tripithi, M.D., and Brenda Tripithi, M.D., who are with the Department of Ophthalmology at the University of Chicago School of Medicine. Several in-state speakers will also present papers.

The *Otolaryngology Section, Arkansas Medical Society*, will hold a meeting beginning at 10:00 a.m., on Tuesday, April 18, in the Arlington Hotel. Charles

Krause, M.D., Professor and Chairman, Department of Otorhinolaryngology, University of Michigan Medical School, Ann Arbor, will be the guest speaker. A luncheon and business meeting will follow the program.

The *Arkansas Society of Anesthesiologists* will have a luncheon, program, and business meeting on Tuesday, April 18, at 12:00 noon, in the Arlington Hotel. Roy Wilson, M.D., Professor and Chairman of the Department of Anesthesia, University of Mississippi School of Medicine, Jackson, Mississippi, will be the guest speaker. Dr. Wilson's topic will be "Anesthetic Considerations for the Patient with Ischemic Heart Disease."

The *Arkansas Academy of Family Physicians* will meet at 12:00 noon for a luncheon on Tuesday, April 18, in the Arlington Hotel. At 1:30 p.m., Hiram B. Curry, M.D., Professor and Chairman, Department of Family Practice, Medical University of South Carolina, Charleston, will speak on "Our New Specialty — Why and How."

The *Neurosurgery Section, Arkansas Medical Society*, has scheduled a 12:00 noon luncheon in the Arlington Hotel on Tuesday, April 18. Guest speaker will be Stephen R. Neese, M.D., Resident in Neurosurgery, University of Arkansas College of Medicine. His topic will be "Current Practices in the Management of Vaso-Spasms."

The *Arkansas Chapter of the American Academy of Pediatrics* will have a luncheon meeting beginning at 12:00 noon on Tuesday, April 18, in the Arlington Hotel. William H. Weidman, M.D., of the Mayo Clinic, Rochester, Minnesota, will speak on "Pediatric Hypertension."

The *Arkansas Urological Society* will meet at 12:30 p.m., on Tuesday, April 18, in the Arlington Hotel. Guest speaker will be John Woodard, M.D., Chairman, Department of Urology, Emory University School of Medicine, Atlanta, Georgia.

The *Arkansas Society of Internal Medicine* will meet at 12:00 noon on Tuesday, April 18, in the Arlington Hotel for a luncheon and scientific session. The program for the scientific session will be from 1:00 p.m. until 4:00 p.m., with the following speakers and topics:

James J. Kane, M.D., Assistant Professor of Medicine, University of Arkansas College of Medicine; and Director, Heart Station, Veterans Administration Hospital

"A Logical Basis for Arrhythmia Management"

Peter Kohler, M.D., Professor of Medicine and Chairman, Department of Medicine, University of Arkansas College of Medicine

"Medical Management of Thyrotoxicosis"

Charles Hiller, M.D., Assistant Professor of Medicine, University of Arkansas College of Medicine

"Sleep Apnea Syndrome"

Rodney Patterson, M.D., Associate Professor of Medicine, University of Arkansas College of Medicine; Chief, Renal Medicine, Veterans Administration Hospital

"The IVP and Renal Insufficiency"

Clinton Texter, M.D., Professor of Medicine, University of Arkansas College of Medicine; Chief, Gastroenterology, University of Arkansas College of Medicine and Veterans Administration Hospital

"Irritable Bowel, Diverticulae and Bran"

The *Arkansas Orthopaedic Society* will meet on Tuesday, April 18, at the Hot Springs Rehabilitation Services Center in Hot Springs. There will be a scientific program and business meeting.

Arkansas Medical Society Auxiliary

The 54th Annual Session of the Arkansas Medical Society Auxiliary will be held April 16-18, 1978, in the Arlington Hotel, Hot Springs.

The following is a tentative schedule for the meeting:

Registration Hours, Mezzanine, Arlington Hotel

Sunday	1:00 p.m. to 4:00 p.m.
Monday	8:00 a.m. to 12:00 noon 2:00 p.m. to 4:00 p.m.
Tuesday	8:00 a.m. to 10:00 a.m.

SUNDAY, APRIL 16

- 1:00 p.m. Joint Memorial Service with the Arkansas Medical Society
- 2:30 p.m. Pre-Convention State Board Meeting, President's Suite
Joint meeting with president-elect for state officers, state committee chairmen, county presidents, county presidents-elect, and all NEW State Board members
- 6:30 p.m. Council reception for all members of the Medical Society and Auxiliary

MONDAY, APRIL 17

- 8:00 a.m. Past Presidents' Breakfast
Hostesses: Mrs. Harold D. Langston and Mrs. Curry B. Bradburn
- 9:30 a.m. Opening General Session, Venus Room
- 12:30 p.m. Luncheon and Hospitality, Ballroom, Arlington Hotel
Hostesses: Pulaski County Medical Auxiliary
Style Show: Crown Colony House of Imports
Music: Flutist
Guest Speaker: Mrs. Manual A. Bergnes, President-elect, American Medical Auxiliary
- 6:30 p.m. Cocktail Party Hosted by Blue Cross-Blue Shield for members of the Medical Society and Auxiliary

TUESDAY, APRIL 18

- 8:00 a.m. Joint Prayer Breakfast for all members of the Medical Society and Auxiliary
- 9:15 a.m. Coffee Time, Venus Room
- 9:30 a.m. Second General Session, Venus Room
- 12:30 p.m. Luncheon, La Mira Belle French Restaurant
Hostesses: Saline County Medical Auxiliary
Greetings from the Auxiliary to the Southern Medical Association:
Mrs. Bruce Martin
Awards: Doctor's Day, AMA-ERF, Membership, Project Bank
Installation of Officers
- 6:00 p.m. Cocktail Party, North Parlor, Arlington Hotel
- 7:00 p.m. Arkansas Medical Society Inaugural Banquet

Arkansas Medical Society Auxiliary President: Mrs. Kemal Kutait, Fort Smith
Convention Chairman: Mrs. Gordon (Willie) Oates, Little Rock
Convention Chairman Assistants: Mrs. Paul Thompson, Hot Springs
Mrs. R. E. Peebles, Hot Springs

Technical Exhibits

The business firms who purchase exhibit space at our Annual Session contribute a great deal to the financing as well as to the educational aspects of the meeting. The number of visits to the technical exhibits is the only criterion by which these companies can judge the value they receive from the investment in booth rental, displays and employees' time. You will be rewarded for the time you spend visiting the exhibits. Following are descriptions of displays to be featured.

SMITH, KLINE & FRENCH LABORATORIES

Representatives will be on hand to answer your specific questions and provide information on their products and services.

WILLIAM P. POYTHRESS & COMPANY, INC.

William P. Poythress and Company, Inc., manufacturers of ethical pharmaceuticals for one hundred and twenty years, cordially invites you to visit our exhibit where our representative, Mr. T. L. Brubaker, will be glad to discuss any Poythress products.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals invites you to stop by our exhibit where our representatives will be pleased to provide information on our products or on educational materials that we have available.

NORTHWESTERN NATIONAL LIFE INSURANCE COMPANY

Meyer F. Marks, Inc., Administrator of the Arkansas Medical Society Life Insurance Plan, will have representatives present to explain the advantages of the program. The plan is underwritten by Northwestern National Life Insurance Company. Information will also be available on Professional Corporations.

SCHERING CORPORATION

Schering will feature Garamycin Injectable. We will also display some of our over-the-counter products. Our representatives will be glad to answer any questions you may have about our products.

MALLINCKRODT PHARMACEUTICALS

You are cordially invited to visit the Mallinckrodt booth where our representatives will be happy to provide any information you require concerning our unique and complete line of products. The products featured will be: LUFYLLIN®-400, LUFYLLIN®-GG, RYNATAN®, RYNATUSS®, RYNA-C®, and RYNA-CX™.

RATHER, BEYER & HARPER

Representatives of Rather, Beyer & Harper will have brochures and all information on the Arkansas Medical Society's Group Insurance Plans. The Income Protection Plan, which has been in effect since 1947, is now being issued on a guaranteed renewable basis. We ask that each physician check with us on the prospective changes in his new Overhead Expense Plan. Records will be available so that each physician may review his insurance coverages and what he is eligible to apply for as a member of the Arkansas Medical Society.

UAD LABORATORIES, INC.

UAD LABORATORIES, INC., will display products which have been widely accepted in the State of Arkansas. This year we will feature the following:

UAD CREAM

UAD CREAM LOTION — Dermatological use

VERTAB — Vertigo and Dizziness

CEZIN

CEZIN-S — Vitamin and Zinc Therapy

ENDAL TABLETS — Allergies and Decongestant

FIRST VARIABLE LIFE INSURANCE COMPANY

A SHORT LESSON ON CUTTING INCOME TAXES!

- * Deferred Compensation — Exclusive IRS Advance Revenue Letter Ruling
- * Qualified Pension and Profit Sharing Plans
Is it really worthwhile to incorporate?
- * Tax Deferred Programs

ARKANSAS BLUE CROSS-BLUE SHIELD

Arkansas Blue Cross and Blue Shield cordially invites you to visit our booth where our representatives will be happy to discuss any of the programs we administer. Health Education material will also be available at our booth.

Currently, there are approximately 600,000 Arkansans enrolled in Arkansas Blue Cross and Blue Shield, and we welcome the opportunity to serve you.

ENCYCLOPAEDIA BRITANNICA

Encyclopaedia Britannica welcomes members and guests to the Arkansas Medical Society Convention. Stop and inspect our products.

ORTHO PHARMACEUTICAL CORPORATION

Ortho Pharmaceutical Corporation is proud to present the most complete line of medically accepted products for the control of conception and the treatment of vaginitis. In addition, Ortho also is pleased to present products for the treatment of common parasitic conditions and for the control of diarrhea.

MOUNTAIN VALLEY MINERAL WATER COMPANY

Mountain Valley Mineral Water Company of New York invites you to visit with their representative at booth space No. 13.

PARKE, DAVIS & COMPANY

You are cordially invited to visit the Parke-Davis booth where Medical Service Representatives will be in attendance to discuss products especially selected to assist you in the practice of your profession.

W. R. GRACE & COMPANY

The latest in videotape equipment for home and clinical use will be featured at the exhibit of Educational Products Division, W. R. Grace. On display will be the new 1/2" tape formats by Sony and Panasonic and color cameras by Sharp. Registrants are especially invited to see the Sony SLP-300 videotape player with digital access. Versatile 35mm slide/sound systems will be shown also.

STUART PHARMACEUTICALS

STUART PHARMACEUTICALS welcomes members and guests to the Arkansas Medical Society. We extend a cordial invitation to visit our exhibit featuring graphic displays and literature for our major products: MYLANTA®/MYLANTA®-II, SORBITRATE®, MYLICON®-80, DIALOSE®/DIALOSE® PLUS, EFFERSYLLIUM®, KINESED®, STUART PRENATAL®, and STUART-NATAL® 1+1.

Our representatives will be glad to answer any questions on STUART products and accept sample requests.

DEPARTMENT OF THE ARMY

The U.S. Army Medical Department representatives will provide information concerning treatment facilities, Graduate Medical Education training programs. In addition, the counselors will provide information concerning the opportunities to practice medicine in the Army Medical Department as commissioned officers.

BRISTOL LABORATORIES

You are cordially invited to visit Bristol Laboratories' exhibit. Our representatives at the booth welcome the opportunity to answer your questions concerning the Bristol line of products featuring: CEFADYL® (sterile cephapirin sodium); KANTREX® INJECTION (kanamycin sulfate injection); TEGOPEN® (sodium cloxacillin); TETREX® (tetracycline phosphate complex); PROS-TAPHLIN® (sodium oxacillin); SALUTENSIN® (hydroflumethiazide and reserpine); NALDECON® (antihistamine decongestant); POLYMOX® (amoxicillin); POLY-CILLIN® (ampicillin); BRISTOJECT® (Bristol Emergency Medication System); and the newest Bristol product AMIKIN™ (amikacin sulfate).

TAB PRODUCTS COMPANY

TAB PRODUCTS is a national company which is the leader in lateral filing systems of all types. We will be highlighting our lateral filing equipment and color coded systems for medical records.

DEAN WITTER REYNOLDS, INC.

- Our display for the annual meeting will include:
- ...Suitable investments for the professional corporation.
 - ...Tax-free bond investments.
 - ...Suggestions for individuals in the 40% tax bracket or above.
 - ...Mutual funds ideal for Keogh plans.
 - ...Cash management programs for individuals with portfolios of \$100,000 or greater.
 - ...Tax-deferred annuities presently available at 7½%.
 - ...Research services applicable to present market conditions available to the general public.

MARTIN SURGICAL SUPPLY COMPANY, INC.

MARTIN SURGICAL SUPPLY HAS THE CURE — for your supply needs! We are stressing one-stop shopping for the doctors since we supply everything for the office. Finally, we have FAST, FAST SERVICE as we ship every order on the day it is received.

BOCK PHARMACAL COMPANY

Our company will be displaying POLY-HISTINE-DX and POLY-HISTINE EXPECTORANT at the upcoming

Arkansas Medical Society convention. POLY-HISTINE-DX (a combination of pseudoephedrine and brompheniramine) has the unique quality of having the highest amount of antihistamine with pseudoephedrine on the market. POLY-HISTINE EXPECTORANT is the only expectorant that can claim no bad taste or after-taste.

A. H. ROBINS COMPANY

You are cordially invited to visit the A. H. Robins exhibit and meet our representatives who will welcome the opportunity to discuss products of interest with you.

DICTAPHONE CORPORATION

Our booth will consist of all of the latest, up-to-date, modern technology in office communications in the way of dictating equipment. We will have on display: the Dictaphone ThoughtMaster, Model 260, which is a fully electronic desk-top unit utilizing a standard cassette; the matching, world's smallest, full-function portable that uses the same cassette, our Thought Tank; our Mini-cassette equipment; telephone answering devices, one in particular that will not only answer the phone but pages the owner wherever he might be. Also, we will have on hand a supply of cassettes should anyone need additional ones to record meeting information, and we will have a supply of portable machines if anyone would like to purchase an additional unit.

WARREN-TEED LABORATORIES, INC.

You are invited to stop by our display at booth space No. 31. Our representatives will be happy to discuss our products with you.

RUCKER PHARMACAL COMPANY, INC.

All members are invited to visit the booth and discuss our products with the Rucker representatives.

UNITED PROFESSIONAL INVESTORS, INC.

Our display will include a three-section free-standing screen which tells, in both words and pictures, what UPI is all about. Our representatives will be happy to acquaint you with the special services we offer.

CUMMINGS X-RAY COMPANY

Our new Filmatic Automatic X-Ray Film Processor, 175 seconds dry-to-dry (the lowest priced on the market), will be on exhibit at our booth. We will also show our Fischer Medical Radiographic Systems (affordable elegance in x-ray equipment), Mettlers and Medeo Ultrasound and Muscle Stimulators and the new Cambridge US-4 Electrocardiograph.

DODSON INSURANCE GROUP

Information on the Savings Plan for Workers' Compensation Insurance, a program for reducing the cost of this necessary protection approved by the Arkansas Medical Society, will be available. Returns to participating physicians have ranged up to 37%, depending on cost of claims. Get details at Exhibit No. 35 at the Hot Springs meeting.

REED AND CARNRICK PHARMACEUTICALS

REED AND CARNRICK PHARMACEUTICALS invite you to stop by booth space No. 36 at the annual convention of the Arkansas Medical Society.

DOMESTIC LABORATORIES

A cordial invitation is extended to all the members of the Society to visit with Dome representatives and discuss products of interest.

MARION LABORATORIES, INC.

Our highly-trained representatives are anxious to welcome you to our booth to discuss our latest patient benefit products and answer your questions. We will be showing our entire line of fine pharmaceuticals. Everyone at

Marion extends best wishes to the members of the Society for your most successful convention ever.

PROFESSIONAL PRACTICE CONSULTANTS, INC.

The Professional Practice Consultants display will consist of materials available for physicians or the clinic manager to review his practice.

There will be statistics from the Society of Professional Business Consultants, brochures describing consulting services and other related material concerning the financial side of medical practice.



House of Delegates Business Affairs

Business items printed below are brought to the attention of individual members and the county medical societies. The items reported here represent those received in time for publication in advance of the meeting. All reports and resolutions will be referred to reference committees. Members are urged to attend the open hearings of the reference committees to express their views. Reference committee hearings are scheduled for 3:30 p.m. on Sunday, April 16.

OLD BUSINESS

Proposed Revisions of the Constitution

The following proposed revisions of the Constitution and By-Laws will be presented to the House of Delegates for final approval at the meeting on Sunday, April 16. The changes proposed for adoption appear in italics; the wording being deleted from the document is in parenthesis. Because of reorganization of some sections, wording may be deleted in one section and added in another.

Constitution

ARTICLE I. Name of the Society

The name (and title) of this organization shall be the Arkansas Medical Society.

ARTICLE II. Purposes of the Society

The purposes of this Society shall be:

1. To federate and bring into one compact organization the entire medical profession of the State of Arkansas and to unite with similar societies of other states to form the American Medical Association;
2. To extend medical knowledge and advance medical science;

3. To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws;
4. To promote friendly intercourse among physicians;
5. To guard and foster the material interests of its members and to protect them against imposition;
6. To enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life; and
7. To maintain medical ethics and to secure compliance with the art of medical practice.

ARTICLE III. Component Societies

Component societies shall consist of those (county medical) societies which hold charters from this society *as provided in the By-Laws*; (provided, however, that there may be a chartered society known as the "Student, Intern, and Resident Society" as provided in the By-Laws.)

ARTICLE IV. Composition of the Society

Section 1. *Composition*

This Society shall consist of members, delegates and guests.

Section 2. (Active Membership) *Members*

The (Active) Membership of this Society shall comprise all the (active) members of its component societies. (Only such person is eligible for active membership in a component society as possesses the degree, Doctor of Medicine, and holds an unrevoked license to practice medicine

and surgery issued by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this Section [Adopted, House of Delegates, 1961 Annual Session] nor to the members of the specially chartered "Student, Intern and Resident Society.")

Section 3. Delegates

Delegates shall be those members who are elected in accordance with the Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Society.

Section 4. Guests

Any distinguished physician not a resident of this State, who is a member of his own state society, may become a guest during any annual session on invitation of the officers of this Society, and shall be accorded the privilege of participating in all of the scientific work for that session.

ARTICLE V. House of Delegates

The House of Delegates shall be the legislative body of the Society, and shall consist of (1) delegates elected by the component county societies as provided in the By-Laws; (2) the councilors, and (3) ex-officio, the president, first vice president, president-elect, speaker, vice speaker, secretary, treasurer, and past presidents of the Society, provided, however, that the ex-officio members shall have the power of voting on all subjects except the election of officers. (and [4] one delegate from the "Student, Intern, and Resident Society.")

ARTICLE VI. Council

Section 1. Duties

The Council shall be the executive body of the House of Delegates and between sessions of the House shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall constitute the Finance Committee of the House of Delegates.

Section 2. Composition

The Council shall consist of the councilors, the president, first vice president, president-elect, secretary and treasurer. The speaker and vice speaker of the House of Delegates and the past presidents shall be members ex-officio without

vote. There shall be two councilors from each councilor district to serve staggered terms of two years each. All councilors shall have equal voting privileges. A majority of the voting members shall constitute a quorum. (Besides its duties mentioned in the By-Laws, the Council shall constitute the Finance Committee of the House of Delegates.)

Section 3. Executive Committee

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council. The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have such powers and duties as provided in the By-Laws and as may be defined from time to time by resolution of the Council.

ARTICLE VII. Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such councilor district societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component societies.

ARTICLE VIII. Sessions and Meetings

Section 1.

The Society shall hold an Annual Session, during which there shall be held daily general meetings, which shall be open to all registered members and guests.

Section 2.

The place (for holding each Annual Session shall be decided by the House of Delegates two years in advance. The) and time for holding each Annual Session shall be decided (by the Committee on Arrangements of the Arkansas Medical Society and the president and the executive vice president) by the Council.

ARTICLE IX. Officers

(Section 1.)

The officers of this Society shall be a president, president-elect, three vice presidents, Speaker of the House of Delegates, Vice Speaker of the House of Delegates, a secretary, a treasurer, and twenty councilors (and an executive vice president). Their qualifications and terms of office shall be as provided in the By-Laws.

(Section 2.)

(The president-elect and vice presidents, the speaker and vice speaker, the secretary and treasurer shall be elected annually, each to serve a one-year term. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year. Each year, ten councilors shall be elected to serve a two-year term. All officers shall serve until their successors are installed.)

ARTICLE X. Funds and Expenses

Section 1.

Funds shall be raised by an equal per capita assessment on each component society except as provided in the By-Laws. The amount of the assessment shall be fixed by the House of Delegates (but shall not exceed the sum of \$50.00 per capita per annum except) on four-fifths vote of the delegates present.

Section 2.

Funds may also be raised by voluntary contributions, from the Society's publications and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Council before action is taken thereon.

ARTICLE XI. Referendum

Section 1.

A general meeting of the Society may, by a two-thirds vote of the members present, order a general referendum on any questions pending before the House of Delegates and when so ordered the House of Delegates shall submit such questions to the members of the Society, who may vote by mail or in person, if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Section 2.

The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding upon the House of Delegates.

ARTICLE XII. The Seal

The Society shall have a common seal, with power to break, change or renew the same at pleasure, by action of the House of Delegates.

ARTICLE XIII. Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates present at any annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society.

By-Laws

CHAPTER 1. Membership

Section 1. *Membership in Component Societies*

(A) *Membership in this Society shall be by membership in one of its component societies.*

(Section 1) (B)

The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment shall be prima facie evidence of membership in this Society.

Section 2. *Membership Classifications*

(A) *Active Membership*

The Active Membership of this Society shall be comprised of all the active members of its component societies. Only such person is eligible for active membership in a component society as possesses the degree Doctor of Medicine and holds an unrevoked license to practice medicine and surgery issued by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this Section [Adopted, House of Delegates, 1961 Annual Session] nor to the members of the specially chartered "Student and Intern and Resident Societies."

(Section 4) (B) *Life Membership*

An active member who (shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or

elsewhere in the United States, shall upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendations of such society, be granted the status of a Life Member.) *has continuously been a member of organized medicine and has either (1) attained age seventy or (2) practiced forty-five years shall be eligible for life membership and, upon the recommendation of his component society, shall be granted such status by the House of Delegates.* (Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.) *Life members shall have the right to vote, hold office, and all other privileges of membership in this Society.*

(C) *Emeritus Membership*

An active member who has continuously been a member of organized medicine for less than forty-five years and who has fully retired from the practice of medicine shall be eligible for Emeritus Membership. Such membership shall be granted by the House of Delegates upon the recommendation of the member's component society. Emeritus members shall not have the right to vote or hold office, but shall have all other privileges of membership in this Society.

(Section 5) (D) *Affiliate Membership*

An active member in good standing in his (county) *component* society may (upon the recommendation of such society) be granted affiliate membership (with full voting and other privileges) where one or more of the following conditions exist: (retirement from active practice) physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by (the secretary and president of) his (county) *component* society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges (and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.) *except that he shall not have the right to vote or hold office.*

(Section 7) (E) *Military Members*

(A. Regular members of the Arkansas Medical

Society who are in) *An active member in good standing in his component society who enters the service of the armed forces of the United States, not as a career officer(s), may be classified as a military member(s), and carried on the roll(s) of (their) his (respective county societies) component society as such.* (Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them each year.)

(B. Young physicians going from internship or residency to military service shall be granted military membership with dues exemption, provided the request for such membership is transmitted through a component society. Such military membership shall be on an annual basis only. The requirements for active membership prior to exemption shall be waived for such military members. Such members shall enjoy full membership privileges except that they may not vote or hold office, and certificates of membership shall be issued to them. This section shall not be construed to mean that military membership may be granted to those physicians who enter military service after a period of active practice during which time they were not members of the Society.)

A physician entering service of the armed forces of the United States, not as a career officer, upon completion of internship or residency training shall be eligible for military membership upon the request of a component society.

Military members shall enjoy full membership privileges except that they shall not have the right to vote or hold office.

(F) *Associate Members*

Physicians who are licensed to practice medicine and surgery in this State as well as an adjacent state and are engaged in the delivery of health services in both states may become associate members of this Society provided they are active members of the state medical association in the adjoining state. Associate members may vote as provided in this Constitution and By-Laws and may serve on all committees, but shall not hold office.

(G) *Intern and Resident Members*

Physicians licensed to practice medicine and

surgery in this State who are engaged in filling intern or residency appointments in approved hospitals shall be eligible for membership in this Society. Such membership shall end with termination of this status. Such members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

(H) Student Members

Students enrolled in an approved medical school shall be eligible for student membership in this Society. Student members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

Section 3. Dues Exemption

(A) Life, Emeritus, Affiliate, Military, Intern and Resident and Student members shall be exempt from the payment of dues and assessments.

(B) Associate members shall pay one-half of all dues and assessments.

Section (2) 4. Suspension or Expulsion

Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Section (3) 5. Meeting Registration

Each member, each member chosen as a delegate, and each guest in attendance at an annual session of the Society shall register in such manner as may be provided by the (secretary) executive vice president, giving his name, address, and the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Section 6. Continuing Medical Education

Continued membership in the Society is dependent upon compliance with continuing medical education requirements as specified below:

(A) Classification of Members affected

All members of the Society will comply with this charge, except those retired from prac-

tice, those still engaged in their formal medical or specialty education, non-resident members and those in full-time administrative positions. Those members unable to fulfill requirements because of impaired health or extenuating circumstances may be exempt on a temporary basis by the Committee on Continuing Medical Education.

(B) Central Authority

The Committee on Continuing Medical Education will be charged with the determination of the requirements for maintaining membership in the Society. Their initial determination as well as any changes recommended must be submitted to the House of Delegates for approval. Alterations in the number of hours of continuing medical education required may be made at any regular meeting of the Society by the House of Delegates. The Council will serve as an arbitration committee if a decision of the Committee on Continuing Medical Education is questioned.

(C) Acceptable Alternate Plans

Alternate plans of acceptable requirements which would be considered equal to or exceeding the requirements established by the Committee on Medical Education and the House of Delegates would include:

- (1) Compliance with the requirements for the Physician's Recognition Award of the American Medical Association;*
- (2) Compliance with the continuing education requirements of the American Academy of Family Physicians;*
- (3) Documentation of recertification by any specialty board provided the physician limits his practice to the definition of the specialty;*
- (4) The continuing medical education requirements of specialty societies other than the American Academy of Family Physicians, should such become established. Such programs would be subject to review by the Committee on Medical Education prior to their acceptance.*

(D) Three-year continuum

Each member subject to continuing medical education requirements shall have three years to complete the required hours. The

three-year continuum begins January 1 of the initial year.

CHAPTER II. Annual and Special Sessions of the Society

Section 1. The Society shall hold an annual session at such place as has been fixed by the (House of Delegates) Council at the annual session two years in advance.

Section 2. Special meetings of either the Society or of the House of Delegates shall be called by the President on petition of the Council, twenty delegates or fifty members.

(Section 3. In the event the previously selected place is unable to be host to the Annual Session, the meeting place may then be designated by the Council.)

CHAPTER III. General Meetings

Section 1. All registered members may attend and participate in the proceedings and discussions of the general meetings and of the Section. The general meeting shall be presided over by the president or by one of the vice presidents, and before them shall be heard the address of the president and the orations, and such scientific papers and discussions as may be arranged for in the program.

Section 2. The general meetings may recommend to the House of Delegates the appointment of committees or commissions for scientific investigations of special interest and importance to the profession and public.

CHAPTER IV. House of Delegates

Section 1.

The House of Delegates shall meet on the first day of the Annual Session. It may adjourn from time to time as may be necessary to complete its business; provided that its hours shall not conflict (as little as possible) with the general meetings.

Section (1) 2.

The order of business shall be arranged as a separate section of the *Annual Session* program.

Section (1) 3.

The House of Delegates shall establish its own rules of procedure.

Section 4. Items of Business

(A) *All reports and resolutions received by*

the executive vice president sixty days prior to the annual meeting of the House of Delegates of this Society shall be printed in the Journal of the Arkansas Medical Society in the month preceding the meeting.

(B) *All reports, resolutions, and other items of business received by the executive vice president twenty days prior to a meeting of the House of Delegates shall be included in the meeting agenda.*

(C) *Any item of business not submitted to the executive vice president twenty days prior to the meeting of the House of Delegates must have a two-thirds consent of attending delegates for introduction at such session.*

Section 5. Reference Committees

(A) *The Speaker of the House of Delegates shall appoint an appropriate number of reference committees from the membership of the House of Delegates. The chairman shall be appointed by the Speaker. The reference committees shall serve only during the convention for which they are appointed.*

(B) *All reports of committees, reports of officers, and resolutions submitted for consideration of the House of Delegates shall be referred to a reference committee, unless otherwise provided in these By-Laws, or unless otherwise ordered by a two-thirds vote of the House of Delegates.*

(C) *The reference committee shall hold an open hearing at which any member of the Society may speak on proposals before the committee.*

(D) *The reference committee shall recommend to the House of Delegates an appropriate course of action on each proposal referred to the committee.*

Section (2) 6. Representation of Component Societies

(A) (1) Each (component) regular county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five Arkansas Medical Society members, and one for each major fraction thereof, provided that its annual report and assessments are in the hands of the (secretary) executive vice president by March 1st of each year. Each county society, however, regardless of its number of members, which has complied with this section, shall be entitled to one delegate.

(2) *Two associate members of a component society shall count as one full membership in determining delegate representation of that component society.*

(B) *The component society composed of intern and resident members shall be entitled to one delegate to the House of Delegates.*

(C) *The component society composed of student members shall be entitled to one delegate to the House of Delegates.*

Section (3) 7. A majority of the delegates registered shall constitute a quorum.

Section (4) 8. (It) *The House of Delegates* shall, through its officers, council and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping stone to future ones of higher interest.

Section (5) 9. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent on the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Section (6) 10. It shall make careful inquiry into the condition of the profession of each county in the state, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the state who is reputable and eligible has been brought under medical society influence.

Section (7) 11. It shall encourage postgraduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Section (8) 12. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that body.

Section (9) 13. It shall divide the state into councilor districts, specifying what counties each

district shall include, and, when the best interest of the Society and profession will be promoted thereby, organize in each a district medical society, and all members of component (county) societies shall be members in such district society.

Section (10) 14. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Section (11) 15. It shall approve all memorials and resolutions issued in the name of the Society before they shall become effective.

Section (12) 16. In case of vacancy in the office of delegate, the House of Delegates shall have the authority to seat any member of that county society in attendance at said meeting as delegate, with full right to perform all the duties of that office.

CHAPTER V. Election of officers

Section 1. Nominating Committee

(Section 2. Immediately after) (A) *Prior to adjournment of the first meeting of the House of Delegates at each annual session, the delegates from the component societies of each councilor district shall meet, the councilor not subject to re-election acting as chairman, and select one delegate from each district to form a committee on nominations. This committee shall consist of ten delegates, one from each councilor district. It shall meet and organize by selecting a chairman and secretary. It shall be the duty of this committee to consult with members of the Society and to hold one or more meetings at which time the best interest of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of two or more members for the office of president-elect and of one member for each of the other offices to be filled at the annual session. No two candidates for president-elect shall be named from the same county.*

(Section 4) (B) *The report of the Nominating Committee shall be the first order of business of the House of Delegates, after reading of the minutes, on the last day of the annual session.*

Section (6) 2. Nothing in this Chapter shall be construed to prevent additional nominations being made by members of the House of Delegates.

Section (7) 3. Any person known to have solicited votes for or sought any office within the gift of this Society shall be ineligible for any office for two years.

Section (7) 4. No member shall be eligible to any office of this Society who is not in attendance at the meeting at which the election is held.

Section (5) 5. The election of officers shall be the second order of business of the House of Delegates on the last day of the Annual Session.

Section (3) 6. *Election by Ballot*

All elections shall be by ballot, except where there is only one candidate, when election may be made by acclamation, and a majority of the votes cast shall be necessary to elect.

Section 7. Each year, ten councilors shall be elected to serve a two-year term; all other terms of office are for one year. All officers shall serve until their successors are installed.

Section 8. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year.

Section 9. *Vacancy in Presidency*

In the event of the death or removal of the president, the president-elect shall succeed to the presidency to serve the remainder of that year and the ensuing year.

Section (1) 10. *Vacancy in office of president-elect*

In the event of the death or removal of the president-elect or his inability to serve, the House of Delegates shall meet within thirty days in a special session or otherwise, called by the president, to nominate and elect a president-elect, provided that such death, removal or inability to serve shall occur not less than sixty days prior to the annual session, in which event the election shall be at the forthcoming annual session.

Section 11. *Councilor vacancy*

In the event of the death or resignation of a district councilor, the Council shall appoint a member of the district to fill the unexpired term. The remaining councilor for the district shall

confer with members in the district and make nominations for the vacancy to the Council.

Section 12. *Vacancy in office of Secretary or Treasurer*

In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VI. Duties of Officers

Section 1. *President*

The president shall preside at all meetings of the Society and shall appoint all committees not otherwise provided for. He shall deliver an annual address at such time as may be arranged, and shall perform such duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councilors in building up the county societies, and in making their work more practical and useful.

Section 2. *President-elect*

The president-elect shall be a member of the Council and the House of Delegates. It shall be his duty to assist the president in visiting the component and district societies, and to familiarize himself with, and prepare himself for, the performance of his duties when he shall have succeeded to the presidency of the Society.

Section 3. *Vice Presidents*

The first vice president shall assist the president in the discharge of his duties. In the event of the president's temporary inability to serve, the first vice president shall serve in his stead.

The vice presidents may be assigned by the president of the Society as ex-officio members of certain committees of the Society. The vice presidents' responsibilities will be to stimulate, to guide, to maintain liaison, and to otherwise assist the assigned committees and their respective chairmen in the performance of their activities. In no instance will the vice president usurp or supplant the committee chairman in his responsibilities. The vice president shall not have a vote in the affairs of the committees to which he is assigned under provisions of this section.

Section 4. *Treasurer*

The treasurer shall give bond in the sum as directed by the Council. He shall demand and

receive all funds due the Society, together with bequests and donations. He shall pay money out of the treasury only on a written order of the (secretary) *executive vice president*; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Section 5. *Secretary*

The secretary, in case of vacancy in the office of executive vice president, shall assume the duties of that office pending the filling of the vacancy, and shall perform such other duties as are imposed by the Constitution and By-Laws. He shall be the scientific and professional advisor of the executive vice president, and shall assist the executive vice president concerning all matters without the jurisdiction of one not holding the degree of Doctor of Medicine. The secretary, as defined by the Constitution, shall be known as the Constitutional Secretary. (and shall give bond in the sum as directed by the Council. The amount of his salary shall be fixed by the Council.)

Section 6. (7) *The Speaker of the House*

The speaker of the House of Delegates shall preside at the meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require.

Section 7. (8) *The Vice Speaker*

The vice speaker shall officiate for the speaker in the latter's absence or at his request. In case of death, resignation, or removal of the speaker, the vice speaker shall officiate during the unexpired term.

(Section 9.)

(The executive vice president shall be the directing manager of the Society's headquarters and the Journal offices, and shall supervise the work of all salaried employees in the Society's offices. Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society. He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keep-

ing himself qualified to perform the services herein mentioned. He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council, and the officers of the Society. The amount of his salary shall be fixed by the Council and he shall give bond in the same as directed by the Council.)

Section 8. *Councilors*

Each councilor shall be organizer, peacemaker and censor for his district. The two councilors in each district shall be designated "senior" and "junior" on the basis of length of tenure.

It is recommended that the councilors in each district call a meeting of the members in the district at least once each year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for informing, improving, and increasing the knowledge and zeal of the component societies and their members.

The councilors shall jointly prepare and submit to the Council prior to the Annual Session a written report of their work and of the condition of the profession within their district.

The necessary traveling expenses incurred by each councilor in the line of the duties herein imposed may be allowed on submission of a properly itemized statement.

Section 9. *Chairman of the Council*

The chairman of the Council shall (1) preside at all meetings of the Council, (2) serve as chairman of the Executive Committee of the Council, and (3) appoint the Council Committees.

CHAPTER VII. Council

Section (3) 1. *Power and Duties*

A. The Council shall be the executive body of the House of Delegates and between annual sessions exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members of component societies, on

which an appeal is taken from the decision of an individual council. *The Council shall elect a chairman following election of the Council members by the House of Delegates.*

B. The Council shall be responsible for the conduct of all the business affairs of the Society. It shall employ a chief executive officer who shall be known as the executive vice president.

(a) The executive vice president shall be responsible for implementation of policies of the Society and conducting affairs of the Society under direction of the Council and its Executive Committee, the House of Delegates and the president. The executive vice president shall be the directing manager of the Society's headquarters office and the Journal office, and shall supervise the work of all salaried employees in the Society's offices. (Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society.) He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keeping himself qualified to perform the services herein mentioned. (He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council and the officers of this Society.) The amount of his salary shall be fixed by the Council and he shall give bond (in the same) as directed by the Council.

Section (4) 2. *Organizing Component Societies*

The Council shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Section (5) 3. *Publications and Records*

The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Society and shall have authority to appoint an editor and such assistants as it deems necessary. All money

received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the treasurer of the Society. It shall annually audit the accounts of the treasurer and secretary and other agents of this society and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. (In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next Annual Session.)

Section (1) 4. *Meetings*

The Council shall meet on the first day of the Annual Session and daily during the session and at such other times as (necessity may require) necessary, subject to the call of the chairman or on petition of three councilors. It shall meet on the last day of the Annual Session of the Society to organize and outline the work for the ensuing year. *Between annual sessions, the Council shall be expected to meet at least bi-monthly.*

Section (1) 5. *Reporting*

The Council shall, through its chairman, make an annual written report to the House of Delegates.

Section 6. *Bonds*

The Council shall have authority to accept or reject all bonds.

Section 7. *Committees*

(A) Executive Committee

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council. The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have the power and authority to act for the Council between meetings of that body; all actions of the Executive Committee shall require approval or ratification of the Council. The Executive Committee shall consider matters referred to it by officers of the Society and shall report its findings or recommendations to the Council.

(B) Council Committees

The chairman shall, with concurrence of the Council, appoint such committees as are neces-

sary to carry out the duties assigned to the Council by the By-Laws and House of Delegates. At the discretion of the Council, the committees shall be of three types: (1) standing committees with unlimited membership tenure; (2) standing committees with staggered membership terms; and (3) ad hoc committees as may be warranted for specific purposes.

Section 8. Appointments to fill vacancies

The Council shall, by appointment, fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates.

CHAPTER VIII. Committees

Section 1.

(A) The standing committees of this Society shall be as follows:

1. Committee on Cancer Control
2. Committee on Medical Legislation/
Sub-Committee on National Legislation
3. Committee on Public Health/Sub-Committees on Rural Health, Maternal and Child Welfare, Tuberculosis, Heart Association, Liaison with Nursing Profession, etc.
4. Committee on Continuing Medical Education
5. Committee on Hospitals/Hospital liaison and Arkansas Hospital Association
6. Committee on Public Relations/Speakers' Bureau, Liaison with Auxiliary, Liaison with Medical Assistants, Civilian Defense, etc.
7. Committee on Annual Session (Committee on Scientific Work and Exhibits)
8. (Committee on Veterans Administration Affairs)
9. Committee on Insurance
10. Committee on Medicine and Religion
11. Committee on Aging
12. Committee on Mental Health

(B) Additional committees shall be considered sub-committees of the appropriate standing committee and one member of the standing committee shall be a member of the sub-committee.

(C) Unless otherwise provided, these committees shall be appointed by the president for three-year staggered terms. The committee shall con-

sist of not less than six members each, with each president appointing two members for a three-year period. Any vacancies through death, removal or resignation may be filled by the president at the time the vacancy occurs and for the unexpired term of the vacancy. The president and the secretary shall be ex-officio members of all committees.

Section 2. The duties of the committee shall be as follows:

(Section 2) Committee on Cancer Control. Shall represent the Society in all activities concerned with cancer in the State. Shall directly supervise the activities of the Cancer Control Committee of the Arkansas Medical Society Auxiliary. Shall cooperate with all agencies within the State of Arkansas dedicated to the problem of cancer.

(Section 3.)

(The Committee on Scientific Work shall consist of six members of which the secretary shall be one. Subject to the instructions of the House of Delegates, this committee shall determine the character and scope of the scientific program for each Annual Session, determining the order in which papers and discussions shall be presented.)

(Section 4.) Committee on Medical Legislation. Shall represent the Society in all legislative practice. It shall keep in touch with professional and public opinion and maintain active relations with the Department of Public Affairs of the American Medical Association. It shall, at all times, endeavor to shape and guide legislation with a view to securing the best results for the whole people. It shall strive to organize professional influence so as to promote the general good of the community in local, state, and national affairs and elections. During sessions of the General Assembly, it shall keep itself informed as to the bills that are introduced, and shall inform the members of the Society through its Journal or special bulletins to the end that legislation inimical to the medical profession and the public shall be defeated, and legislation fostering the interest of the public health and medical practice shall be enacted into law.

(Section 5. The Committee on Health and Public Instruction)

Committee on Public Health. Shall represent the Society in those affairs having for their

object the improvement in public and personal health, the prevention of epidemics, and the instruction of the people. It shall maintain close relations with the Board of Health, the State Health Officer, and the various health officials, assisting in the adoption of public health programs, the enforcement of sanitary laws, and to exercise leadership in the health problems of school children through a sub-committee on physical fitness and school health. As occasion demands, or when thought advisable, it shall supervise the preparation of articles of timely interest for publication in the newspapers or for broadcasting over the radio for the instruction of the public.

(Section 6.)

The Committee on *Continuing Medical Education* shall be responsible for consideration of all questions pertaining to medical education. It shall maintain close relations with the officials and faculty of the University of Arkansas College of Medicine, and Arkansas Academy of Family Physicians, and other groups interested in maintaining and improving medical education in our State institutions. It shall foster continuous efforts to increase excellence in the system of postgraduate education to serve the cause of medicine and to assure the public of continuing improvement in the postgraduate training of physicians in practice. (The committee shall consist of ten members, one from each councilor district.)

The Committee shall determine continuing medical education requirements for maintaining membership in the Society, as provided in these By-Laws, and shall establish methods of reporting in compliance with the continuing medical education requirements.

The Committee on Continuing Medical Education shall consist of seven members appointed by the president as follows: The dean or a representative of the University of Arkansas College of Medicine; one representative of the Arkansas Academy of Family Physicians from three nominations by that group; one family physician member of the Society selected by the president; one surgeon selected from three nominees from the Arkansas Chapter of the American College of Surgeons; one internist selected from three nominations from the Arkansas Chapter, American College of Physicians, and two other members of the Society, not in the specialty categories

listed above, selected by the president. The committee chairman shall be named by the president.

(Section 7.)

Committee on Hospitals. The Committee on Hospitals shall have referred to it all questions pertaining to hospitals and their operations; hospitalization of patients and hospital-physician relationships.

(Section 8.)

Committee on Public Relations. The Committee shall have referred to it all questions wherein the medical profession as represented by the Society is called upon for advice, for participation in private or public affairs and projects not coming within the duties outlined for the other committees. It shall be the publicity committee of the Society and shall have charge of all publicity issued in the name of the Society. The sub-committee on professional relations shall function under this committee.

(Section 9.)

Committee on Annual Session. The committee (on Scientific work and exhibits) shall determine the character and scope of the scientific (proceedings) program for each annual session. It shall prepare a scientific program for each annual session. It shall solicit and collect material from institutions and individual physicians of the State that is of scientific interest. This it shall arrange and exhibit at each annual session. It should particularly strive to obtain material that will more fully illustrate the papers presented in the general meeting of the Society.

(Section 10.)

Committee on Insurance. The Committee on Insurance shall deal with all matters pertaining to insurance, including liaison with Blue Cross-Blue Shield.

(Section 11.)

The Committee (on Arrangements for the Annual Session) shall provide suitable accommodations for the meeting places of the Society and the House of Delegates, the scientific exhibits, the committees, and shall have general charge of all arrangements. Its chairman shall report an outline of the arrangements to the (secretary) *Executive Vice President* for publication in the program and shall make additional announcements during the session as occasion may require.

(Section 12.)

The Committee on Medicine and Religion shall work to create and enhance communication between physician and clergyman which will lead to the most effective care and treatment of the patient in which both are interested. It shall study the areas in which there is or may be continuing correlation involving medicine and religion.

(Section 13.)

The Committee on Aging shall study the problems of the aged and the aging. It shall provide leadership and initiative in meeting the health and medical care requirements of older persons. It shall foster the development of effective methods of achieving the best possible social and spiritual atmosphere for the elderly.

(Section 14.)

The Committee on Mental Health shall study the problems of the mentally ill. It shall foster development of programs to improve the care and treatment of mental patients and mental retardates.

CHAPTER IX. (COUNTY) COMPONENT SOCIETIES

Section 1. *Charters for Component Societies*

(A) All (County) component societies now in affiliation with this Society or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application and submission of their Constitution and By-Laws, receive a charter from and become a component part of this Society.

(Section 2.)

(B) As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

(Section 3.)

(C) Charters shall be issued only on approval of the Council, and shall be signed by the president and secretary of this Society. Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Section 2. *Component organization*

(Section 4.)

Only one component medical society shall be chartered in any county, *except in the county where the University of Arkansas College of Medicine is located. In that county there may be, in addition to the regular county medical society, one component society for interns and residents and one component society for medical students.* Where more than one component society exists in any other county, friendly overtures and concessions shall be made, with the aid of the councilor for the district if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Section (5) 3. *Membership Qualifications*

Each (county) component society shall be the judge of the qualifications of its own members, but as such societies are the only portals of this Society and to the American Medical Association, every reputable (physician) person who possesses the qualifications for membership required by (Article IV, Section 2) *Chapter I, Section 2* of these By-Laws, and who does not practice or claim to practice nor lend support to any exclusive system of medicine, shall be eligible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every physician in the county to become a member.

Section (6) 4. *Appeal to the Council*

Any physician who may feel aggrieved by the action of the Society of his county in refusing him membership or in censoring, suspending, or expelling him, shall have the right to appeal to the Council, and its decision shall be final except that a county society shall at all times, be

permitted to appeal or refer questions involving membership to the House of Delegates of the Arkansas Medical Society for final determination. That the Council may be aided in rendering just decisions, it is necessary that the By-Laws of each component society provide in detail the routine to be followed in preferring charges and trying any member accused of and tried for any kind of unprofessional conduct.

(Section 7.) In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts; but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Section (8) 5. *Transfers*

When a member in good standing in a component (county) society moves to another county in this State, he shall be given a written certificate of these facts by the secretary of his society, without cost, for transmission to the secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he moves, such member shall be considered to be in good standing in the county society from which he was certified and in the State Society to the end of the period for which his dues have been paid.

Section (9) 6. *County Jurisdiction*

A physician living near a county line may hold his membership in that county *society* most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

Section (10) 7. *Efforts to Increase Membership*

Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Section 8. *Representation in House of Delegates*

(A) *Each regular county medical society shall be entitled to one delegate to the House of Delegates of this Society for each twenty-five members*

or major fraction thereof, provided that the society has complied with other provisions of these By-Laws, and provided that each component society shall be entitled to one delegate.

(B) *The component society of interns and residents shall be entitled to one delegate to the House of Delegates.*

(C) *The component society of medical students shall be entitled to one delegate to the House of Delegates.*

(Section 11.)

(D) At some meeting in advance of the annual session of this society, each (county) *component society* shall elect a delegate or delegates to represent it in the House of Delegates (of this Society, in the proportion of one delegate to each twenty-five members and one for each major fraction thereof) *as provided in these By-Laws* and the secretary of the county society shall send a list of such delegates to the (secretary) *Executive Vice President* of this Society at least ten days before the annual session.

Section (12.) 9. *Responsibilities of Secretary*

The secretary of each component society shall keep a roster of its members, and of the non-affiliated (registered) *licensed* physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year.

Section (13.) 10. *Assessment*

The secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county, to the secretary of this Society on January 1, and not later than March 1 of each year.

Section (14.) 11. *Failure to Pay Assessment*

Any county society which fails to pay its assessment, or make the report required, on or before March 1, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Society or of the House of

Delegates until such requirements have been met.

CHAPTER X. Miscellaneous

Section 1.

No address or paper before (the) *this* Society, except those of the president and orators, shall occupy more than thirty minutes in its delivery and no member shall speak longer than five minutes nor more than once on any subject, except by unanimous consent.

Section 2.

All papers read before the Society or any of the sections shall become its property. Each paper shall be deposited with the Secretary when read.

CHAPTER XI. *Parliamentary Procedure*

(Section 1.)

The deliberations of this Society shall be governed by parliamentary usage as contained in Sturgis Rules of Parliamentary Procedure, when not in conflict with this Constitution and By-Laws.

(Section 2.)

(All items expected to be considered at the annual meeting of the House of Delegates of this Society must be printed in the Journal of the Arkansas Medical Society in the month preceding the annual meeting. All resolutions to be submitted to the House of Delegates at the annual meeting must be received in the office of the Executive Vice President twenty days prior to said meeting. Any new business proposed during the first session of the House of Delegates of this Society must have a two-thirds majority of the attending delegates voting for such introduction into this session. Any new resolutions or other new business proposed for introduction to this House of Delegates after the first session in each annual meeting must have two-thirds consent of attending delegates before its introduction).

CHAPTER XII. *Medical Ethics*

The Principles of Medical Ethics promulgated by the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

CHAPTER XIII. *Amendments*

The House of Delegates may amend any chapter of these By-Laws by a two-thirds vote of the

delegates present at any annual session, provided that each amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

NEW BUSINESS

The following proposed resolution is submitted by the Council for consideration by the House.

Resolution

Repeal Section 227 of PL 92-603

WHEREAS, Section 227 of Public Law 92-603 provides for differential payment for the services of physicians rendered at teaching hospitals, and

WHEREAS, this legislation discriminates against those physicians who assume responsibility for the education of interns and residents for the provision of health care in the future, and

WHEREAS, this legislation is in conflict with the need to stimulate physicians to participate actively in the education of interns, residents and medical students to meet the needs of society for additional well-educated physicians and thereby interferes with the planned expansion of primary care residency programs, and

WHEREAS, this legislation includes the potential to compel a dual standard of care (including the denial of equal access to health care) based upon a patient's ability to pay for services and thereby discriminates against significant numbers of citizens of the United States,

THEREFORE, BE IT RESOLVED that the Arkansas Medical Society deplore further steps to implement Section 227 of PL 92-603, and

BE IT FURTHER RESOLVED that the Society take all necessary steps, including introduction of a similar resolution at the AMA meeting in June 1978 and requesting the assistance from the Arkansas Congressional Delegation, to obtain Congressional repeal of this Section, and

BE IT FURTHER RESOLVED that copies of this resolution be sent to all members of the Arkansas delegation to the United States Congress.

ANNUAL COMMITTEE REPORTS

Committee on Cancer Control

Charles R. Henry, M.D., Chairman

The Committee on Cancer Control has had no problems with which to cope nor any necessity to meet. We work closely with the American Cancer Society and the Arkansas State Board of Health. Physicians in most areas of the State work with local projects and participate in various activities of Cancer Clinics. Particularly, there has been considerable interest in the Pap smear and Colposcopy screening clinics.

Men who have given so generously of their time and talents in this effort deserve commendation.

Sub-Committee on National Legislation

William S. Orr, Jr., M.D., Chairman

This Committee held no active meetings during the course of the year, but the chairman did, at various meetings of his County Society and of the Council of the Arkansas Medical Society, request that active roles be played by physicians in all areas of the State in those matters of national legislation that pertain particularly to the practice of medicine.

Committee on Public Health (Rural Health)

Ben N. Saltzman, M.D., Chairman

The Chairman of this Committee serves as a member of the Arkansas State Board of Health, and as Chairman of an Advisory Committee to the Arkansas Cooperative Extension Service. He continues as Director of the Rural Medical Development Programs of the College of Medicine, University of Arkansas. He was speaker at the National Rural Health Conference, sponsored by the American Medical Association, held in Seattle, Washington, the end of March and the first of April. His subject was "Medical School Cooperation with the Cooperative Extension Service." He also presided at a luncheon for the Conference.

Members of the committee participated in continuing education courses for family practitioners, sponsored by the College of Medicine. These included refresher courses on "Developments in the Management of Spinal Cord Patients" and "Hypertension Programs."

The Chairman spoke to a Nurse Practitioner program in Searcy, Arkansas, on health care de-

livery in the rural setting, and to the Arkansas State Nurses Association on "Laetrile." He addressed the Health Department personnel, nurses and regional directors in regard to the importance of "Communication between the Health Department and the Practicing Physicians." On August 4th, the Chairman presented the 4-H Health Award to the State winner in Fayetteville, Arkansas. This was the annual award provided by the Arkansas Medical Society for the Rural Health Committee. Six District awards had previously been afforded district winners.

The Chairman has been involved this past year in helping develop a Health, Education and Welfare Rural Health Initiative program in the southern part of the State. Our committee was involved in planning and producing a State Rural Health Conference held under the sponsorship of the Cooperative Extension Service in Little Rock on August 25th. This was one of our best attended conferences with more than 600 people from over the State involved.

The Chairman attended and participated in an HEW workshop on "Medically Underserved Areas" held in Dallas, Texas, on September 14th. He spoke to a meeting of the Deans of the Southern Medical Colleges on October 9th, in New Orleans. His subject was the progress in Arkansas in the "Rural Medical Development Programs Area of the College of Medicine."

On December 5th and 6th, the Chairman attended a National Rural Health Conference, sponsored by the Rural America group in Washington, D. C. He was elected to membership in its Council's Executive Committee. This organization is attempting to bring the problems of the rural people to the attention of our health planners and developers in Congress.

The Council on Rural Health of the American Medical Association no longer exists. However, there is a Department of Rural and Community Health in the staff organization. It has a new director who will continue AMA's policy of being involved in the rural health picture. Another National Rural Health Conference sponsored by the AMA is to be held April 5-7, 1978. This will be in Denver, Colorado. Your Committee on Public Health continues to be interested in rural health problems and the methods being proposed to alleviate these problems. As items of interest appear, they will be brought to the attention of the membership of the Society.

Sub-Committee on Tuberculosis
Donald L. Miller, M.D., Chairman

It has recently become more apparent that the problem with tuberculosis at Cummins Prison is much more severe than previously realized. During the past two to three years, a cooperative effort between the Arkansas Department of Health and the prison officials has led to intensive efforts to evaluate this situation and to institute an effective tuberculosis control program in the prison. The instigation and implementation of this program has been largely due to the interest and the efforts of Dr. William W. Stead, Director of Tuberculosis Program for the Arkansas Department of Health.

For some time, all prisoners entering Cummins have initial skin test and chest x-ray evaluation. Positive skin test reactors are followed in a skin test reactor clinic and treated prophylactically when indicated. A second chest clinic is held once monthly to evaluate and treat cases and suspected cases of active tuberculosis. Statistics have been compiled that now show the unexpected prevalence of tuberculosis and of skin test converters in the prison.

During the calendar years 1975, 1976, and 1977, fifteen active cases of tuberculosis have been diagnosed and treated at Cummins Prison. Only two of these fifteen active cases appeared during 1977, and both of these were diagnosed by the current admission examination program. However, in 1977 two former prisoners were found to have active tuberculosis after having been released from Cummins Prison.

The State Health Department officials and prison officials involved are interested in correcting this situation as much as possible. The present system of surveillance and evaluation at the prison will prevent further instances of prisoners developing active tuberculosis after their release, or make this event highly unlikely. However, it is felt that other prisoners who have been at Cummins during the years 1974, 1975, and 1976 have a high incidence of risk for developing active tuberculosis. Plans are being made by the prison officials and the Health Department for notifying prisoners who were released in 1974, 1975, and 1976 that they are at risk and are advised to go to their local health department for evaluation and recommendations.

The Sub-Committee on Tuberculosis for the Arkansas Medical Society strongly endorses the

current tuberculosis control program at Cummins Prison, and also the proposal to notify former prisoners of the need for current evaluation.

Sub-Committee on Industrial Health
Howard M. Armstrong, M.D., Chairman

The Sub-Committee on Industrial Health has communicated by correspondence during the period of time covered.

No meetings were held.

An attempt is being made to explore the physicians in the State who have interest in this area of medical practice.

Sub-Committee on Traffic Safety
Carl L. Williams, M.D., Chairman

The Traffic Safety Committee of the Arkansas Medical Society has continued to work with and participate in programs jointly with the Trauma Society of the College of Surgeons and the Trauma Foundation.

In February 1977, a Symposium of Lifesaving Techniques was given at the Camelot Inn in Little Rock, and the Traffic Committee specifically covered the area of automobile safety devices, particularly child restraints and infant restraints used in automobiles.

The Traffic Safety Committee has continued to sponsor local talks and symposiums in several areas given by supportive personnel and aimed at spreading information regarding children's automobile restraints during the past year.

The Traffic Safety Committee also participated in the Emergency Health Conference conducted in Hot Springs at the Arlington Hotel in June 1977. This was a joint meeting for EMT's, nurses, and administrative personnel, as well as doctors.

The Traffic Safety Committee has continued to receive mailings through the American Automotive Association, although we were not in attendance at its national meetings this year.

Sub-Committee on
Liaison with Vocational Rehabilitation
John P. Wood, M.D., Chairman

The Sub-Committee on Liaison with Vocational Rehabilitation met on three occasions this past year with representatives of the State Department of Human Services-Rehabilitation Services.

The May meeting in Little Rock was for the purpose of re-evaluation of fee schedules. At one

time, the Rehabilitation Service based their fees on usual, customary and prevailing charges. Recently, the agency has based its fees on the 1969 California Relative Value Studies Guide.

Rehabilitation Services felt that adoption of the 1974 California Relative Value Studies Guide as its new base would give a more realistic and fair value to the point system entailing a moderate increase in its fee consistent with the present economic situation. The Rehabilitation Committee of the Arkansas Medical Society received this presentation for information.

Progress reports were heard concerning the Spinal Cord Injured Project of the Spinal Cord Commission and a good working relationship was reported between the Commission and the Rehabilitation Services.

There has been excellent cooperation on the part of Rehabilitation Services toward the Subcommittee on Vocational Rehabilitation this past year.

Committee on Medical Education

Raymond V. Biondo, M.D., Chairman

The following hospitals have been accredited by the American Medical Association for granting Category I Continuing Medical Education Credit:

Baptist Medical Center of Little Rock
St. Joseph's Mercy Medical Center of Hot Springs

The Chairman of the committee would like to express his appreciation to the following survey team members who donated their time in order to make the above possible: Dr. Roy A. Brinkley, Dr. Arthur E. Squire, Jr., Dr. Kerry L. Ozment, Dr. Robert D. Dickens, Jr., and Dr. Robert H. White. The Society Program Committee and the Ophthalmology Section are also approved for Category I CME Credit. Three other Arkansas hospitals are at varying stages of the accreditation process.

In order to improve communications between CME activities of the Society and the University of Arkansas College of Medicine, the chairman of the Medical Education Committee serves on the Advisory Board of the Continuing Education for Physicians' Program of the University of Arkansas for Medical Sciences. It is strongly suggested that the Director of the Continuing Education for Physicians' Program (Neil Sims, M.D.) be a member of the Society Continuing Medical Education Committee.

A new monthly CME Section is planned for the Journal. It will be coordinated with the Continuing Education for Physicians' Office of UAMS. This project is made possible with the cooperation of Neil Sims, M.D.

An excellent review on CME appears in the December 26, 1977, issue of the Journal of the American Medical Association (pages 2803-2808).

According to the new Constitution, membership in the Society will be dependent upon compliance with CME requirements. An enabling law has been passed by the Arkansas Legislature which would require evidence of CME as a prerequisite for re-licensure. The committee is exploring ways to avoid duplication of record keeping of Continuing Medical Education hours.

C. C. Long, M.D., and Ken LaMastus attended a national meeting on Continuing Medical Education December 2, 1977, in Chicago.

I would like to express my appreciation to the following members for their dedicated efforts: Dr. Bernard Capes, Dr. Neil E. Crow, Dr. Robert D. Dickens, Dr. Wayne G. Elliott, Dr. C. Lynn Harris, Dr. William G. Lockhart, Dr. Lee Parker, Jr., Dr. James W. Sanders, Dr. W. M. Wells, and Dr. Robert H. White.

The following "letter from the editor" of the American Medical Association Continuing Education newsletter is reprinted as information of interest to the physicians of Arkansas.

The Physician's Recognition Award of the American Medical Association has become more than an internal recognition program of a professional association. The Award has become an integral part of membership requirements for several specialty societies. It is becoming involved indirectly with professional liability insurance programs and has attained a considerable stature as an acceptable route for medical relicensure in many states.

A review of the history of the Program surprises one with the disclosure that it has been with us for almost ten years. At the AMA Clinical Convention in 1968, Report L of the Board of Trustees was adopted by the House of Delegates which implemented the PRA Program in specific detail. A separate Report T of the Board of Trustees covering the funding of the Physician's Recognition Award Program was adopted simultaneously, which established a registration fee of \$5.00. (A few years later this fee was dropped for AMA members and the fee for non-members was established at \$25.00.)

The PRA Program was made a responsibility of the AMA Advisory Committee on Continuing Medical Education, which created the policies and supervised the operations. The Council on Medical Education of the AMA was the parent body for this Committee. The staff work was performed by the Department of Continuing Medical Education of the AMA. The Advisory Committee delegated the supervision of the program in 1968 to its Sub-

committee on the Physician's Recognition Award which performed this task until July 1977. At that time, the Accreditation Program, which had also been a responsibility of the Advisory Committee, was given to the Liaison Committee on Continuing Medical Education (LCCME) and the Subcommittee was discontinued with its responsibility and functions going back to the full Advisory Committee. In September 1976, the staff work was delegated to the newly created Department of Physicians' Credentials and Qualifications and remains there. It is important to note that in the transfer of the Accreditation Program to the LCCME, the PRA Program was not affected and the full responsibility and operation still remains within the AMA.

The Advisory Committee on Continuing Medical Education has the responsibility of reviewing and updating the PRA Program, investigating complaints that specific teaching programs have been wrongly designated as to category of credit and assisting individuals and organizations in designing programs that comply with the set standards. Every effort is made to maintain the credibility of the Award while encouraging innovation and improvement of program content and format. The Advisory Committee makes the final decision whenever a controversy occurs and the extensive and varied educational backgrounds of the physician members of the Committee insure a sound opinion.

Report L was particularly well written and reprinting Section I entitled "Rationale and Goals" would seem worthwhile because this portion succinctly states what the program was intended to be.

"I. Rationale and Goals.

- A. To provide recognition for the many thousands of physicians who regularly participate in continuing medical education.
- B. To encourage each physician to keep up to date and to improve his knowledge and judgment by continuing medical education.
- C. To provide reassurance to the public that America's physicians are maintaining their competence by regular participation in continuing medical education.
- D. To emphasize the AMA's position as a leader in continuing medical education.
- E. To emphasize the importance of developing more meaningful continuing education opportunities for physicians.
- F. To strengthen the physician's position as the leader of the health service team by focusing attention upon his interest in maintaining his professional competence."

Much of the discussion today about continuing medical education techniques and requirements could be enlightened and planning for the future expedited if these original concepts are kept in mind. They clearly established that this was to be a voluntary program that would motivate, recognize and assist the individual physician's continuing medical education efforts. The assistance was to come by giving him an orderly framework for planning and recording his continuing medical education activities while simultaneously improving the quality and quantity of the CME programs being offered to him. Another feature of the program, which subse-

quently proved to be exceedingly important, was that different types of programs were to be acceptable for credit toward the Award. These would include the full spectrum from group activity to several types of individual activity. These modalities have different appeal for different individuals and can be available to the physician at a place and time of his own choosing. Abandoning any of these techniques would seem very unwise unless overwhelming evidence is presented that a given effort is fruitless.

It is paramount to remember that some objective studies on learning show that individuals with different intellectual capabilities and personalities learn best from different types of programs and study patterns. Making personally oriented value judgments on the teaching techniques and study methods per se is unwise and hazardous because the ultimate measure of value comes only in the application of the knowledge gained by the physician in his own performance. In all probability, every physician gains something from each type of activity and it is fairly predictable that, if any particular technique becomes overwhelmingly successful in assisting him to learn, he will clearly indicate this fact by increased participation in that activity while decreasing participation in other activities which are less productive in his opinion.

There can be little question that the Physician's Recognition Award and similar programs, such as the older program of the American Academy of Family Practice, have been a tremendous stimulus to individual physicians to participate in a more orderly personal program of continuing education. There is also no doubt that this type of program has caused a marked improvement in the quality, quantity and variety of learning programs offered. While there is still room for innovation and upgrading, the degree of improvement in continuing medical education in the last decade has been phenomenal.

New techniques, such as the medical care evaluation study, have emerged. Anyone with first-hand experience in the use of medical audit using a proper study to identify a specific inappropriate error of commission or omission in patient care, which can be properly presented to the physicians in a feedback educational situation, has seen some rather dramatic successes. This does not mean, however, that this is the only acceptable form of learning or that it alone can fulfill all of the needs. This technique is of real value in establishing educational needs as well as the needs for procedural and administrative changes. Such studies have a unique value in identifying individual physicians in need of assistance or correction as well. The information gained in these studies can be well utilized in planning program objectives and format for all the other modalities of programming. Allowing the full spectrum of programming encouraged by the PRA is probably the safer course to follow.

The PRA did another worthwhile thing by establishing a formal measurable standard for continuing medical education for an individual physician. This was intended to constitute a minimum requirement, or a floor, and was never intended to be an indication of the maximum or ceiling. The Award Program should not be demeaned because of this fact. Everyone acquainted with a profession and professional education is quite

accustomed to minimal standards for education and performance that serve to assure an acceptable standard of performance. Rather than inhibit, the intent of a profession is to stimulate individual performance considerably beyond the minimal standards. This has always been a hallmark of a profession as compared with many other types of human endeavor where the maximum and maximum standards of performance are essentially the same measure. It has been very wisely stated that change cannot be successfully accomplished unless a standard of measure is available for the item or activity in question. When looked at from this aspect, the establishment of a minimum standard in measurable units would seem to have real value.

In formalizing the Continuing Medical Education Program for physicians, there has been a salutary increase in the support of education from medical societies and institutions alike. The increased orderliness of the process as carried out by the individual physician has been reflected in the better organization, planning and financing of continuing medical education by the professional organizations, hospitals and other groups involved. While it is true that the new degree of order should not be allowed to become regimentation, which would be deleterious, orderliness itself is a natural and sought after state for those involved in a scientific field. As long as there is latitude in the program which allows the physician to select the activity best suited to him, particularly when it gives him the option of participating in the place and at the pace of his own choosing, then the results must be beneficial.

The standards for programming, such as are described for Category 1 credit by the PRA or for the criteria of acceptable audiovisual programs, have been a stimulus to dramatic improvement in program offerings. This was well demonstrated by the change of programming format for AMA programs that was accomplished in so timely a fashion by the AMA's Council on Scientific Assembly in the past and continued by its successor, the Council on Continuing Physician Education. There was a rapid evolution from the old type of annual meeting program which was based on a "call for papers" from the membership (that ultimately resulted in an uncoordinated, even though oftentimes good, series of unrelated presentations) to a well planned, highly coordinated program that was directed at accomplishing specific learning objectives. Following upon this change came the new innovation of the multi-hour course that covered narrower subjects in considerable breadth and depth. The standards set by the PRA Program which called for student participation and evaluation of quality of course content contributed markedly and rapidly to program improvement.

The concepts of self-assessment and tailoring of programs to satisfy individual needs constitute a significant extension of these earlier changes in technique. Newer techniques using audiovisual hardware (such as the QuadraSync system being developed at the AMA) and computer assisted examination and instruction appear to offer excellent extensions of the sound principle of self-assessment. These methods fit into the PRA programs effortlessly.

At the present time, it is very fashionable to criticize attendance at meetings and courses as having no proven educational value. There is much denigration of the

"cushion index" at meetings, "happiness index" evaluation sheets used after the meeting and the voluntary tabulation of hours of accredited activity by the physician. Most people with experience in education and evaluation of performance will admit readily that the measurement of change in behavior (as an index for knowledge gained and used) is extremely difficult to do and to document. The reasons for this are well beyond the intent of the current discussion but will be discussed at a later date. There can be little doubt, however, that such change in behavior does happen, and will continue to happen in response to educational efforts. Anyone in the profession who doubts this should simply compare his current knowledge and pattern of diagnosis and treatment for any of a number of diseases with that of five, ten or twenty years ago. Much of the dramatic change in knowledge that made this performance change came from traditional educational methods that have been under discussion.

Since physicians are like other people, they learn what they want to learn. When they are participating in good educational exercises of their own selection, new knowledge will be acquired and at least some of it will be used appropriately in performance of their daily tasks. Since unlearning of incorrect or obsolete concepts is oftentimes paramount before new information can be accepted and integrated into the knowledge base, the utilization of instructors guiding the learners in groups seems highly indicated. Certainly, this can also be done using the printed word, but frequently the expert in the field can help accomplish this more efficiently and more certainly than by utilization of any other method.

Another factor of great importance to the physician concerning the more traditional educational pattern is the repeated indication on surveys that the methodology of the meeting is a highly acceptable one to them. This is probably partly a manifestation of their instinctive knowledge that they benefit from interacting with their colleagues in various ways. The physician may perform individually but he realizes he should not be isolated. Since practice patterns are known to vary markedly, since people learn in different ways and since there are many options for transferring the necessary information to the profession, a voluntary program permitting many options, such as the PRA Program of the AMA, very much deserves utilization and support by the profession. At the same time, there appears to be justification for the recognition which is being given the Award by organizations inside and outside of the profession.

If as much improvement can be attained in the next decade as in the one just passed by constructively supporting continuing education programs, then every possible effort should be put into improving and innovating within the present framework. Strict regulations have a curious way of defeating the very purpose for which they are established, and the examples of this are beyond counting in our current society. Avoidance of this undesirable route and consequence is worth considerable effort and careful thought by the profession. Wholehearted participation and support of the voluntary and orderly procedures of the PRA by the profession would certainly appear to be an intelligent course of action. This is especially true if every effort is made to maintain the credibility of the program through scrupulous adherence to the spirit and the letter of the guidelines.

**Sub-Committee on Liaison
with the Auxiliary**

Kemal E. Kutait, M.D., Chairman

The Auxiliary of the Arkansas Medical Society was not only productive but also, as we knew, self-sufficient. The Auxiliary President attended some House of Delegates and Council meetings and maintained good, direct, liaison between our two groups.

The Liaison Committee Chairman wishes to commend the Auxiliary in its excellent endeavors in our behalf. They are truly well named as "our better halves."

Committee on Medicine and Religion

C. R. Ellis, M.D., Chairman

As reported one year ago, your Committee on Medicine and Religion had arranged a Prayer Breakfast on April 26, 1977, with the principal speaker, Dr. John J. Schwab of the University of Louisville, Louisville, Kentucky. Those of you who were there will recall that we had a nice group for the breakfast and a very good meeting. Seventy-five people were served.

Since April 1977, your Committee has met on numerous occasions with a majority of Committee members present each time. We have had Dr. Payton Kolb, the President of our Medical Society, to meet with us a few minutes on most of these occasions.

In June 1977, after learning that the Medical Center was considering the possibility of an interdisciplinary course on Medical Ethics, Law, and Social Systems, your Committee wrote a letter to Dr. Thomas A. Bruce, with a copy to Dr. James L. Dennis, encouraging the implementation of this course as soon as possible. Dr. Bruce replied stating that on such an inclusive educational effort a task force was being set up sometime during the latter part of 1977 to explore the details of this implementation and states that he would notify me when the task force had been appointed. I have not heard from him concerning this subject since June 1977. This course was to include the multi-disciplinary approach of the Physician, Social Worker, Psychologist, Medical Economist, Lawyer, and Minister. Your Committee plans to help in any way it can in implementing this course when the opportunity arises.

In September 1977, your Committee on Medicine and Religion contacted the Deans of each one of the Schools at the Medical Center and Dr. Dennis concerning the possibility and feasibility

of a Chaplaincy Department in our Medical Center for teaching, research, and service to the patients. We have offered to meet with these officials or their representatives for an exchange of ideas on these subjects if they thought we could be of any assistance. We have received communication from three of the people we contacted but have not been advised of any further consideration of this subject at this time.

On December 3, 1977, at the University of Arkansas Medical Center, we had a Medicine and Religion Symposium on Recurrent Religious Themes and Their Medical Significance. Our principal speaker at that meeting was Dr. Wayne E. Oates, Th.D., who was Professor of Psychology of Religion at the Southern Baptist Theological Seminary at Louisville, Kentucky, from 1948 to 1974, but since that time has been Professor of Psychiatry and Behavioral Sciences at the School of Medicine, University of Louisville, Louisville, Kentucky. You may note that Dr. Oates is from the Psychiatry Department from which we got Dr. John Schwab for our Prayer Breakfast in April 1977. We had about 100 people at this meeting about equally divided between members of the medical profession and members of the clergy. Our evaluation sheets following the meeting indicate great appreciation for the meeting and its usefulness in everyday work. Many suggestions were made that we repeat a similar symposium within the next 12-18 months.

Your Committee is meeting again on February 5, 1978, to consider details of the program for a Prayer Breakfast on Tuesday morning of our Arkansas Medical Society meeting this spring, a brief discussion of our December 3rd meeting in Little Rock, and preliminary plans for a similar meeting sometime in the early or mid part of 1979.

Physician-Nurse Joint Practice Committee

Robert Watson, M.D., Chairman

During the years 1976-1977, the Physician-Nurse Joint Practice Committee continued to hold scheduled monthly meetings.

Also, during each of these past two years at the Annual Meeting of Arkansas State Nurses Association, a case presentation study has been given by three Doctor-Nurse teams illustrating how these teams are working in their own environment for the betterment of patient care.

Working demonstrations of problems of authority of management, sphere of responsibilities,

realm of patient services, and malpractice factors have all been presented openly and have provided for free discussion.

At these monthly meetings, much study and discussion have been given to the definition of role and function of each profession in the rendering of patient care and a gratifying interpretation and understanding of the responsibilities now prevails.

Conscientious study brings the realization that the finest quality of care comes to the patient through the combined efforts of the nurse and of the physician, and time is revealing that the accomplishments of such joint effort excel earlier and sometimes hastily achieved ideas of patient care planning.

This unity of delegated joint responsibilities will free us of the dilemma of the ill-defined "physician's extender," "physician's assistant," "M.D.A.'s," etc.

Much has been accomplished through these joint meetings during the past three years, and each nurse and each physician is deserving of the thanks of our society for their patience and cooperative understanding.

Private Insurance Review Committee Austin Grimes, M.D., Chairman

This committee is charged with reviewing claims submitted by private insurance companies and/or physicians concerning differences of opinion regarding reasonable fees for physicians' services. The committee recommendations are based on the "usual, customary and reasonable" concept, taking into consideration specific circumstances in each case. The committee makes its recommendations on the basis of personal experience and consultation with peers in specialty fields concerned. The committee offers an opinion on a reasonable fee to assist in determining the patient's benefits under insurance coverage. The committee feels that the applicable fee for any procedure is up to the individual physician and payment of the fee is the responsibility of the patient. During the past year, the committee requested that the Council review the purpose and guidelines for the committee. The Council supported the policy under which the committee has been operating.

Since our last report, the committee has considered 27 cases. Of those cases, reconsideration was requested on three. As far as the committee knows, there has been no refusal on the part of

the insurance companies to accept the recommendation of the committee. At present, there are four cases pending before the committee.

Ad Hoc Committee on Liaison With Health Systems Agencies Kemal Kutait, M.D., Chairman

The Ad Hoc Committee on Liaison with Health Systems Agencies was appointed by the Council and has as its purpose to educate each committee member as to what is taking place in each regional health systems agency, and to function as a liaison between the Council of the Arkansas Medical Society and the health systems agencies.

Dr. Kemal Kutait of Fort Smith was appointed chairman and each physician who is a board member of an HSA was asked to become a member of the committee.

The committee met twice in 1977. Committee activities have primarily been centered around discussions of the activities of each of the health systems agencies and the State Health Coordinating Council. Each of the health systems agencies has physician representation on its board and the physician board members are active and attend the majority of the meetings.

The committee is concerned about physician representation in the activities of the health systems agencies and wishes to encourage all physicians to remain abreast of the activities of the health planning organizations. Organized medicine has potentially a lot at stake in health planning and we should encourage physicians to assume leadership positions within the HSA's. All doctors are encouraged to make efforts to obtain positions on HSA boards and committees.

The year 1977 has been primarily one of organizational activities for the health systems agencies. These health planning groups have been attempting to orient their boards and develop their health systems plans along the guidelines offered by the Department of Health, Education, and Welfare. It appears that the individual HSA's will have to conform to guidelines and recommendations that come from HEW to a greater extent than was anticipated.

One of Ken LaMastus' responsibilities with the State Society staff is to maintain liaison with the health planning groups. The committee has requested that he attempt to review all literature available to the State Society office and report to

the committee those activities which are of particular interest to organized medicine.

This committee is fulfilling a useful purpose in that it presents a means by which physician board members from each of the health systems agencies can come together to discuss and compare the activities of the four regional health planning agencies and the State Health Coordinating Council. We hope our activities can keep the Council of the Society informed of health planning activities in the State.

Ad Hoc Legislative Assistance Committee

Gaither C. Johnston, M.D., Chairman

At the April meeting of the Arkansas Medical Society, an Ad Hoc Committee was appointed from the House of Delegates to formulate and implement a plan to stimulate the doctors in Arkansas to become interested and involved in the legislative process.

Dr. Gaither C. Johnston was appointed as Chairman with the following members:

Dr. James L. Gardner, Hot Springs

Dr. William N. Jones, Little Rock

Dr. Jimmie J. Magie, Conway

Dr. William S. Orr, Jr., Little Rock

Dr. W. P. Phillips, Fort Smith

The Committee has been active and has met a number of times with the following accomplishments:

The formulation of a Legislative Manual to be distributed to every physician in the Medical Society, the manual to consist of instructions and directions as well as names and addresses of the Legislators and other pertinent facts involved in the legislative process. This manual has been prepared by Mr. Ken LaMastus of the Society staff and he has done an excellent job.

A change in the stationery with a unique design to attract attention for all communications between the Legislative Committee and Society Members. This has been done.

It was also thought that a Liaison Committee composed of appointed Medical Society members to act as intermediaries between the Legislative Committee and the doctors at large in the State would be of great benefit to our association.

The organizational process has been completed and a meeting will be held in Little Rock on the 29th of January. This is a workshop where speakers have been arranged for to acquaint the group with the importance of this new organiza-

tion, the role it is to play, its goals, and to impress everyone with the necessity for the doctors of this State to become involved in the legislative process if we are to survive the many onslaughts of allied professions at every session of the Legislature.

Second Councilor District

Professional Relations Committee

C. W. Jackson, M.D., Chairman

A called meeting was held in July 1977 of the Professional Relations Committee, Second Councilor District, at the request of two medical staff members of Cleburne County Hospital in Heber Springs, Arkansas.

Investigation was requested as to controversy between a member of the Medical Staff and Board of Governors at the hospital. After detailed study of the situation and review of the Principles of Medical Ethics, it was decided that the Professional Relations Committee could offer no solution to the problem. The problem was felt to be more of opinion differences and personality conflicts which was out of committee jurisdiction.

During the period of time covered by this annual report, no further problems were brought to the attention of the Professional Relations Committee.

Third Councilor District

Professional Relations Committee

John M. Hestir, M.D., Chairman

As Chairman of the Professional Relations Committee of the Third Councilor District, I have had a very mild and pleasant year, with no complaints, no reports and no recommendations as of today.

Seventh Councilor District

Professional Relations Committee

C. F. Peters, M.D., Chairman

In the year 1977, the Seventh Councilor District Professional Relations Committee had brought before it two cases.

These cases were gone into thoroughly and, to the best of my knowledge, were settled satisfactorily to all parties concerned.

State and Eighth Councilor District

Professional Relations Committee

Richard M. Logue, M.D., Chairman

The following is a report of the Professional Relations Committee for the State and the Eighth Councilor District. No matters have been brought

before this Committee during the last twelve months and, therefore, no action has been necessary.

**Ninth Councilor District
Professional Relations Committee
Friedman Sisco, M.D., Chairman**

The only business the Ninth Councilor District Professional Relations Committee has had was one grievance complaint of charges between doctor and patient. This was worked out to the satisfaction of both parties by a better understanding of the problem involved and a compromise was reached without any differences between the doctor and patient.

**Tenth Councilor District
Professional Relations Committee
Samuel E. Landrum, M.D., Chairman**

The Professional Relations Committee of the Tenth Councilor District has considered and responded to three complaints since our last report. These involved three different physicians, and the complaints were apparently satisfied by the information provided by this Committee.

**Fifth Councilor District
J. B. Jameson, Jr., M.D., Councilor**

The annual Fifth Councilor District meeting was held at the El Dorado Country Club on Wednesday, January 18th. A program was presented by Dr. R. Lewis Crow and the annual business meeting was held.

Of interest in the district during the past year was the full-time employment of Dr. Jacob Ellis to head the El Dorado AHEC program.

The Ouachita County Hospital started an extensive remodeling project and is to experience a change in administration.

**Eighth Councilor District
William S. Orr, Jr., M.D., Councilor**

Members of the Eighth Councilor District were quite busy the past year and the following activities were performed by members of this district and the Pulaski County Medical Society:

1. Accepted 51 new physicians as active members of the Society and 22 for courtesy memberships.
2. Recruited 15 members of the Society to assist with legislative matters as requested by the Arkansas Medical Society.
3. Recruited 66 members of the Society and others to become members of the Central Arkansas Health Systems Agency.

4. Held 10 meetings of the Society's Executive Committee and six general membership meetings.
5. Had an unusually large number of members actively engaged in legislative matters during the General Assembly.
6. Adopted a new group health plan for members of the Society and their employees.
7. Maintained close liaison with the Pulaski County Medical Assistants Society.
8. Worked with local hospitals to determine staff privileges of social workers.
9. Acted to request through our Councilor that the Arkansas Medical Society promote immunization in the schools.
10. Provided all Pulaski County Medical Society members with signs for their offices having to do with the new law which prohibits smoking in physicians' offices.
11. Met with the representative of the Joint Practice Committee on Nursing to gain better understanding of roles of physicians and nurses.
12. Donated \$750.00 to the Aldersgate Medical Camp.
13. Contacted senators and congressmen asking their support to defeat HR-3818 which would have broadened the powers of the Federal Trade Commission.
14. Continued active work of committees, especially the Grievance Committee and the Board of Censors.

Overall, the members of the Eighth Councilor District were active in various community activities.

REPORT OF THE COUNCIL

John P. Burge, M.D., Chairman

The Council of the Arkansas Medical Society met on Sunday, June 26, 1977, at the Camelot Inn in Little Rock and transacted the following business:

1. Approved actions of the Executive Committee on May 25th as follows:
 - (a) Accepted Dr. Sexton Lewis' resignation on the Private Insurance Review Committee and nominated Dr. A. J. Thompson of Little Rock to replace Dr. Lewis on this committee.
 - (b) Endorsed the position taken by the staff and encouraged them to continue in their opposition of the Certificate of Need regulations for physicians' offices.

2. C. R. Ellis, Chairman of the Committee on Medicine and Religion, reported on the Prayer Breakfast which the committee sponsored during the 1977 Annual Session and announced plans for a statewide meeting of physicians and clergy on December 3 in Little Rock. Chairman Ellis advised pharmaceutical firms were being asked to co-sponsor the program but that additional Society financing might be needed.
3. The Council received for information an experience rating report from Arkansas Blue Cross-Blue Shield on the group plan for members of the Society.
4. Executive Vice President Long discussed the policy of expense allowance for the Society president. Upon the motion of Williams, the Council voted to underwrite all expenses incurred by the president of the Society in his official duties during his term of office.
5. Mr. Warren reported that study was still being given to the question of a class action suit on Medicare fee payments. He advised the Council that the public law governing Medicare contains provisions requiring full utilization of administrative negotiations before suit could be filed in Federal Court.
6. The Council voted to grant a charter to the Marion County Medical Society.
7. To amend the previous action, the Council voted to include all physician members on boards of the four health system agencies on the Council HSA Liaison Committee.
8. As a member of the Private Insurance Review Committee, Dr. Williams reported to the Council some of the problems encountered by the committee. The Council approved his motion requesting that the Executive Committee define the charge to the committee.

The Council met on Sunday, September 18, 1977, at the Camelot Inn in Little Rock and transacted the following business:

1. Dr. James Wellons, Chairman of the Annual Session Committee, reported to the Council on the plans for a revised format for the 1978 convention program.
2. Unanimously elected Dr. Herd Stone of Holly Grove as junior councilor for the third district.
3. Named Dr. Ken Lilly of Fort Smith as the third member of the Budget Committee to fill a vacancy.

4. Voted to request that Dr. T. E. Townsend be asked to represent the Society on a panel program as part of a public forum on national health insurance being sponsored by the Department of HEW in Little Rock on October 25.
5. Voted to work toward amendment of Act 330 of 1977 (Spinal Cord Disability Act) at the next session of the Legislature.
6. Approved appointments to the Medicaid Drug Utilization Review Committee of Blue Cross-Blue Shield as follows:
Northwest — Dr. Gene Ring, Dardanelle; Dr. Joe H. Lyford, Russellville. Alternate: Dr. Ralph Ingram, Fort Smith.
Northeast — Dr. Charles G. Swingle, Marked Tree; Dr. Asa Crow, Paragould.
Central — Dr. Julian Foster, Little Rock; Dr. Guy Farris, Little Rock.
South — Dr. Joseph Robinette, Pine Bluff; Dr. R. H. Nunnally, Camden.
7. Dr. George Mitchell discussed the status of Arkansas Blue Cross-Blue Shield implementation of its statewide fee schedule. He reported that Blue Shield plans to begin the new program January 1, 1978.
8. Following discussion of the Bureau of Health Insurance's experimental program for Arkansas, the Council voted to appoint a committee to explore the possibility of negotiating with the Federal Government for an acceptable fee schedule for the physicians of Arkansas.
9. Received a report from the Medical School Committee regarding the admissions policy of the school. The report was received for information.
10. The Council approved actions of the Executive Committee as follows:
 - (a) approved date of September 18th for next Council meeting;
 - (b) suggested advice of Mr. Warren be obtained in drafting of statement on nurse practitioners;
 - (c) considered a proposed statement of policy for the Private Insurance Review Committee and voted to give further study to the statement;
 - (d) considered a request from the Medical School dean for nominees from the Society for the admissions committee of the school and voted to have each member of the Executive Committee submit

- nominations to the Dean after consultation with physicians in their home areas;
 - (e) selected the date of November 27th for the winter meeting;
 - (f) voted to have representatives of the Society appear at a Legislative committee meeting to oppose policies of the Spinal Cord Commission.
11. The Council approved a policy statement regarding the Private Insurance Review Committee.
12. The Council reconsidered its action regarding the president's expense allowance and directed that the Budget Committee include in each year's budget a proposed estimate for the president's travel allowance.
13. The Council rescinded its previous action regarding frequency of Council meetings and approved holding Council meetings quarterly or as needed.
14. Heard a recommendation by the Chairman of the Medical Services Review Committee that there be a Cardiovascular Surgeon added to the specialty sub-committee for MSRC. Dr. Doyne Williams of Little Rock was selected for appointment to the sub-committee for that type of practice.

The Council met on Sunday, November 27, 1977, at the Camelot Inn in Little Rock and transacted the following business:

1. Mr. Warren presented a proposal for a general referendum petition to get a proposed amendment to the Constitution on the general election ballot in 1978 and a campaign to get voter approval of a Constitutional Amendment. The Council voted to adopt the proposal presented by Mr. Warren with a steering committee appointed by the Council.
2. The Council received for information a report from Dr. T. E. Townsend on his testimony at the public forum on national health insurance sponsored by the Department of Health, Education and Welfare in October in Little Rock.
3. Dr. Rex Ramsay, director of the State Health Department, discussed the National Immunization Initiative.
4. The Council heard a complaint from the Union County Medical Society regarding the Department of Maternal and Child Health of the State Health Department and discussion of the situation by representatives

of the Health Department. The Council voted to refer the matter to the appropriate committee of the Society for study.

5. Dr. Shuffield presented a prepared statement on proposed regulations for physician's trained assistants. The following is an excerpt from that statement:

"The creation and implementation of the Physician's Trained Assistant Program by Act 415 of 1977 has two facets, both of which are of compelling concern to the people of Arkansas and are of equal importance. They are:

- A. The creation of the Physician's Trained Assistant category to bring quasi-medical service to a segment of the State by persons who are admittedly not as well educated and trained as an M.D.
- B. The protection of the members of this segment who the P.T.A.'s will serve from injury as the result of insufficient education and training of the P.T.A.

"If trusting citizens are injured as a result of the insistence of vocal advocates of the lay medical practice that the P.T.A.'s be given the authority to perform medical acts exceeding their competency, the blame will fall upon the members of the Medical Board by allowing themselves to be swayed by collateral considerations. They are on the Board because they possess unique professional knowledge and have experience. Their obligation is to use the knowledge and the experience responsibly."

6. The Council voted to send five officers of the Society to the National Leadership Conference of the American Medical Association in Chicago in January.
7. Dr. Watson presented a proposed resolution commending Dr. George Jackson. The Council approved the resolution and directed that copies be forwarded to members of the State Hospital Board; the Governor; David Ray, Director of the State Department of Social and Rehabilitative Services; and to Dr. Jackson.

The Council met on Sunday, February 5, 1978, at the Camelot Inn in Little Rock and transacted the following business:

1. Received the following report from the Executive Committee on a January 25, 1978, meeting:
 - (a) Heard Mr. Warren describe legal re-

quirements for an initiative petition for the proposed malpractice amendment to the State Constitution. The Executive Committee approved the proposed ballot title and petition form as drafted by Mr. Warren for submission to the Attorney General.

- (b) The Executive Committee voted to make monthly payments to counsel as legal and legislative retainer, with total payment remaining the same as the previous year.
 - (c) The Committee approved the concept of cooperating with the Arkansas Hospital Association in a cost containment study committee. The Executive Committee expressed the opinion that the overall project should include distribution of information to the public regarding costs. The Chairman of the Council is to appoint representatives to the committee.
 - (d) The Executive Committee heard discussion regarding the A. H. Robins Community Service Award and voted to refer the matter to the Council without recommendation.
2. The Council rejected a proposal for participation in the A. H. Robins Community Service Award program.
 3. President Kolb reported to the Council on a meeting with representatives of HEW, Blue Shield, and Senator Bumpers' staff regarding the change to one locality for payment of Medicare fees. Data distributed at that meeting indicated that the experimental project will not accomplish the intent of the Medical Society in the change to a statewide locality. Dr. Charles Wilkins, a member of the Society committee meeting with HEW on the project, presented a prepared statement to the Council. The Council voted to go on record as still endorsing the one locality concept, but opposing the method of implementation proposed by HEW.
 4. Arkansas' delegates to the American Medical Association reported on the December 1977 business session of the Association.
 5. Dr. John Kirkley reported for his ad hoc committee to study the feasibility and advisability of having subsidiary staffing from the headquarters office based in Little Rock.

The recommendation from the Committee to the Council was that the Society continue the present arrangement of having a member of the staff of the Fort Smith headquarters office present in Little Rock during the legislative session and in attendance at meetings of the Legislative Council and legislative committee meetings.

6. Dean Bruce presented information to the Council regarding Section 227 of Public Law 92-603, which provides for differential payment for the services of physicians rendered at teaching hospitals. The Council voted to draft a resolution opposing the legislation for submission to the House of Delegates.
7. The Council voted to request that the Medical School Committee meet with Dean Bruce to discuss what action should be taken to bring members of the Medical School faculty into membership of the Arkansas Medical Society.

The Council met in Executive Session for the following business:

1. Dr. H. W. Thomas, Chairman of the Budget Committee, presented the proposed budget for the Society for 1978. The Council voted approval of the budget as presented.
2. The Council voted to schedule its next meeting for April 2nd.

Report of the Executive Vice President C. C. Long, M.D.

In the latter months of 1976, the Bureau of Health Insurance agreed to allow Arkansas to be considered as a one area State for compensation under the Medicare Program. For most of the year of 1977, contacts were made with the Bureau of Health Insurance to work out an acceptable methodology for implementation of this program. This was finally accomplished in November of 1977 and the program is to be implemented on March 1, 1978.

The four Health Systems Agencies in Arkansas all went in an operational status during 1977. The staff has monitored their progress and their planning as closely as possible, working with the physicians on the various boards. A proposal was made to implement a Certificate of Need to apply to physicians' offices during the year; with the help of the officers of the Society, this was defeated.

In 1977, for the first time, a member of the central office staff was a registered lobbyist dur-

ing the Legislative Session. Since the closing of the session, the staff representative has attended all the legislative committee meetings involved with health related matters.

During the year, two hospitals were approved for continuing medical education and several more hospitals are getting ready for their review and hopeful certification. A certain amount of time has been spent in this endeavor.

The Council of the Medical Society, at the mid-winter meeting, recommended to the House, and the House approved, that the Society co-operate with the other health care providers in the State in implementing a program to get the malpractice amendment on the ballot and to work in conjunction with these other agencies to pass this amendment into law. The headquarters staff is beginning to do the groundwork for the Society's involvement with this program, along with the other health care providers.

The Professional Standards Review Organization program has been monitored during the past year as they have assumed full delegated status in all but one hospital in the State and the PSRO program is working toward implementing ancillary services review and planning for long-term care review which will probably be implemented sometime within the next twelve to eighteen months.

This has been my first year as Executive Vice President. It has had many challenges and I have continued to learn and to appreciate the fine support which my staff has given me and, also, I am very appreciative of all the assistance and help which we have received from the officers of the Society and Council.

Budget Committee

H. W. Thomas, M.D., Chairman

The Budget Committee submitted the following budget for 1978. The complete budget, as presented to the Council, is available to any member for his inspection at his request.

INCOME

<i>Budget Item</i>	<i>1978 Budget</i>
Membership Dues	\$356,212.00
Journal Advertising	
Local	\$10,000.00
National	15,000.00
Booth Income	8,500.00
Annual Session	3,000.00
AMA Reimbursement	2,000.00

Miscellaneous & Rosters	500.00
Interest on Government Securities	15,000.00
Specialty Desk	700.00
Intrav Reimbursement	1,500.00
Ark. Foundation for Medical Care	18,000.00
	<u>\$430,412.00</u>

EXPENSES

Salaries		
Society	\$98,858.30	
Public Relations	20,833.33	
Journal	17,000.00	
Exhibits	2,000.00	\$138,691.63
Travel & Convention		
Society	28,200.00	
Public Relations	6,000.00	
Journal	800.00	35,000.00
Taxes		
Society	7,700.00	
Journal	1,500.00	9,200.00
Retirement		
Society	39,990.00	
Journal	6,510.00	46,500.00
Stationery & Printing		
Society	4,200.00	
Public Relations	100.00	
Journal	650.00	
Exhibits	50.00	5,000.00
Office Supplies & Expense		
Society	10,975.00	
Public Relations	25.00	
Journal	1,500.00	12,500.00
Telephone & Telegraph		
Society	5,185.00	
Public Relations	1,000.00	
Journal	300.00	
Exhibits	15.00	6,500.00
Rent		
Society	20,640.00	
Journal	3,360.00	24,000.00
Postage		
Society	15,520.00	
Public Relations	50.00	
Journal	2,380.00	
Exhibits	50.00	18,000.00
Insurance & Bonds		
Society	6,100.00	
Journal	1,400.00	7,500.00
Auditing		
Society	1,032.00	
Journal	168.00	1,200.00
Council Expense		3,500.00
Journal Printing		35,000.00

Annual Session		
Society	11,450.00	
Exhibits	2,300.00	13,750.00
Winter Meeting		2,000.00
Dues & Subscriptions		
Society	3,585.00	
Journal	400.00	
Exhibit	15.00	4,000.00
Gifts & Contributions		
Society	900.00	
Journal	50.00	950.00
Woman's Auxiliary		1,200.00
Legal Services		
Society	8,600.00	
Journal	1,400.00	10,000.00
Special Committee		
Society	500.00	
Public Relations	300.00	
Medicine & Religion	—	800.00
Rural Health		500.00
Miscellaneous		50.00
Freight & Express		
Society	12.50	
Journal	12.50	25.00
Office Equipment		3,500.00
Continuing Medical Education		1,000.00
		<u>\$380,366.63</u>

In 1977, the Medical Society, as a result of the increased dues and increased membership, was able to add approximately \$96,000 to our cash reserves. The total reserve as of December 31, 1977, was \$203,103.64. This was about twice as much as had been anticipated in the budget that was presented last year in which it was estimated that \$45,000 would be added. A large part of this was due to an increased membership, plus holding down the expenses in some areas by utilization of previously obtained materials and the fact that we were understaffed a considerable portion of the year. This reserve, at the present time, represents a little over six months' cash reserves.

**Report of the
Arkansas State Medical Board
January 1, 1977 - January 1, 1978**

The officers and members of the State Medical Board are as follows:

Ross Fowler, M.D., President
H. Elvin Shuffield, M.D., Vice President
Hugh R. Edwards, M.D.
Frank M. Burton, M.D.
John F. Guenthner, M.D.

George F. Wynne, M.D.
C. Stanley Applegate, Jr., M.D.
Bascom P. Raney, M.D.
Joe Verser, M.D., Secretary-Treasurer
John B. Currie, Sr.
Eugene R. Warren, Attorney

The last session of the Arkansas Legislature passed a Physician's Assistant Act and instructed the State Medical Board to set rules and regulations. During the year, the Board held several public hearings relative to these proposed rules and regulations. In addition, a questionnaire relative to Physician's Assistants was sent to each physician practicing in this State. Final rules and regulations were adopted by the Board December 7, 1977, and Physician's Assistants are now being certified by the State Medical Board. A copy of the rules and regulations will be published in the Journal of the Arkansas Medical Society.

The Board also adopted rules and regulations relative to Physical Therapy Assistants and Physical Therapy Trainees.

A 1977 Directory of Licentiatees was not published by the State Medical Board. The 1977 directory was sent to the State Printing Office for printing but was tied up in court litigation for approximately seven months. Because of this delay, the 1977 directory was not printed. The 1978 directory has been printed and should be distributed to physicians before publication of this report.

A yearly financial report of the Board's activities prepared by Johnston, Freeman and Company has been sent to the office of the Arkansas Medical Society, a summary of which is included in this report.

The Board investigated every case of violation of the Medical Practices Act and every complaint filed against physicians reported to the secretary during the year.

The State Medical Board licensed 165 physicians by reciprocity and 195 physicians by examination during the year 1977.

Following is a summary of the Board's proceedings:

Physicians registered for 1977:

Resident	2,441
Non-resident	1,713
Physicians licensed by examination	188
Physicians licensed by reciprocity	138
Physicians certified to other states	129

Licenses revoked for non-payment of annual registration fee	37
Licenses suspended for non-payment of annual registration fee	56
Licenses suspended for violation of Medical Practices Act	1
Cases pending for violation of Medical Practices Act	4

**Arkansas State Medical Board
Balance Sheet
June 30, 1977 and 1976**

	June 30, 1977	June 30, 1976
ASSETS		
Cash on hand	\$ 131.00	\$ 6.00
Cash in banks —		
Bank of Harrisburg, Arkansas		
Checking account	28,171.61	20,145.32
Certificate of deposit #2298	12,999.70	12,999.70
Certificate of deposit #2424	7,000.30	7,000.30
Certificate of deposit #3170	8,553.71	8,553.71
Bank of Weiner, Arkansas		
Certificate of deposit #2290	2,746.35	2,746.35
Bank of Delight, Arkansas		
Certificate of deposit #1249	30,000.00	30,000.00
Security Savings and Loan, Camden, Arkansas		
Certificate of deposit #C8200	16,768.60	15,000.00
Certificate of deposit #C8309	10,472.35	—
Office equipment	3,906.47	3,545.97
Less: Accumulated depreciation	(390.65)	—
TOTAL ASSETS	\$120,359.44	\$ 99,997.35
LIABILITIES AND FUND BALANCE		
Vouchers payable	\$ 2,696.88	\$ 1,179.60
Payroll taxes payable	370.28	335.21
TOTAL LIABILITIES	\$ 3,067.16	\$ 1,514.81
Fund Balance	117,292.28	98,482.54
TOTAL LIABILITIES AND FUND BALANCE	\$120,359.44	\$ 99,997.35

**Summary of Arkansas State Department
of Health Activities**

Rex C. Ramsay, Jr., M.D., Director

This Report relates to the programs, activities and services provided to the citizens of Arkansas during the last report year.

Credit for improvement of the Agency's health care programs is given to the hard working, devoted public health workers who staff the 84 Local Health Units and the four Regional Health Offices. Countless unreported hours were spent counseling, working in times of crises and emergencies and assisting needy, deserving citizens. Many additional off-duty hours were devoted to planning and implementing new programs and services and updating methods to provide improved total physical and mental health for individuals of all ages and socio-economic levels.

**I. BUREAU OF
COMMUNITY HEALTH SERVICES**

Major responsibilities of the Bureau of Community Health Services revolved around delivery of health services at the local level.

Division of Public Health Nursing

The Division of Public Health Nursing provides primary nursing services to the Citizens of Arkansas through the Local Health Units, Regional Health Offices and the numerous special clinics, programs and projects of various other Bureaus and Divisions. Public health nurses increasingly are engaged in providing Home Health Services to home-bound patients, thus reducing or forestalling the need for nursing home admittance. Over 30,000 visits were made last year.

Because preventive health services begin before birth, heavy concentration of nursing service is devoted to perinatal interests and family planning activities.

Immunization of all children long has been required by Arkansas Law. Nursing is involved in providing the service to make the Law an enforceable reality. All Local Health Units have increased their immunization clinics and are prepared to deliver that service in schools or special clinics in various locations.

Public health nurses are involved in expanding their scope of practice through implementation of the nurse practitioner role, thus assuring all citizens a primary health care base opportunity. Continuing education is offered to every public health nurse through planned accredited workshops and seminars. Basic clinical experience and education for nursing students are provided through cooperative planning contractual agreements with nursing school faculties within the State educational system.

Division of Meat Inspection

The mission of the State Meat Inspection Program is to provide consumers of meat and meat food products health protection from the many diseases of animals transmissible to man by the eating of meat and meat food products which otherwise may have come from diseased animals or animal products which have been contaminated and/or adulterated while being processed, stored, and/or transported under insanitary or harmful conditions. The Program further provides the consumer with protection against meat and meat products not conforming to standards of identity and improperly labeled or falsely advertised products.

Currently, there are 112 official plants under full-time inspection as either slaughterers, processors or slaughter/processors. There are 82 establishments which are custom exempt slaughterers and/or processors. The custom exempt plants which kill or cut up farm animals and return the meat to the owners, are inspected for adequacy of facilities, in-plant sanitation, proper processing procedures and the mandatory marking of each package as "Not For Sale."

Approximately 145,000,000 pounds of meat were inspected in Arkansas during Fiscal Year 1976-1977 under State Inspection. During Fiscal Year 1976-1977, 967,028 pounds of products were condemned as unfit for human consumption. This is equivalent to 0.66 percent. The State inspection job is accomplished with 65 meat inspectors.

Quarterly review of the State Program by supervisory USDA officials has resulted in high ratings which are fully equal to the Federal Inspection Program.

Division of Records and Clerical Services

The Division of Records and Clerical Services provided clerical personnel for the Local Health Units in 75 counties and the Regional Health Offices; orientation and on-the-job training for these employees; technical supervision and consultation to regional records consultants and other clerical employees of the Local Health Units, Regional Health Offices and the Central Office; administrative leadership, planning, direction and evaluation of clerical services in order to improve techniques and skills for increasing work productivity, services and efficiency.

Management of the Agency's record system covered the areas of forms design, consolidation, requisitioning and printing; forms stocking and distribution; final disposition of records.

Nineteen of the 25 sections of the Department's RECORDS MANUAL have been updated and distributed to the Local Health Units, Regional Health Offices, Central Office personnel and the Records Management Section of the Arkansas History Commission.

In a continuing effort to establish and maintain uniform files throughout the Local Health Units and Regional Health Offices, formal written instructions became effective in February, 1977, relative to "ORDER ARRANGEMENT OF PATIENT RECORD" in the Family Folder. Instructions given in the "GENERAL FILE GUIDELINES" and in the "MEMORANDA FILE GUIDELINES" were updated in August, 1977, and became effective immediately. A formal policy recently was inaugurated for the "PROCEDURE FOR MEMORANDA, POLICY, AND CHANGE IN POLICY, GOING TO LOCAL AND REGIONAL HEALTH UNITS" to facilitate filing and retrieval procedures.

The Division, in cooperation with the Records Management Section of the Arkansas History Commission, implemented the Records Management and Archives Program, as set forth by Legislative action, within the Arkansas Department of Health.

In keeping with the first priority of Act 24 of 1973, a records inventory was taken in the Local Health Units, Regional Health Offices and the Central Office. From the inventories, the Records Management Section of the Arkansas History Commission started developing proposed retention and disposition schedules for approval by the Agency. Upon agreement of the Agency and the State Records Committee, disposition of scheduled records has been initiated.

Division of Chronic Diseases

The Division of Chronic Diseases is comprised of several programs which are directed toward preventive health measures and early detection of chronic diseases.

The Diabetic Screening Program for high risk individuals screened 9,594 persons. Of the 162 persons referred to their private physicians, there were 52 confirmations.

The Rheumatic Fever Prevention Program seeks to prevent or reduce heart damage and rheumatic fever. Through this Program, convenient mailing kits are furnished to physicians (through the Local Health Units) to expedite rapid processing of throat swab specimens by

the Division of Public Health Laboratories. When hemolytic streptococcus was identified, telephone reports were made to the family physician. There were 2,810 positive findings among the 16,217 specimens received last year.

M.E.D.D. (Medical Examinations for Disease Detection), a free screening program for all persons age 55 and over, is conducted within the Local Health Units by a team of two registered nurses and one laboratory technician. The screening process includes medical history, height, weight, vision, hearing, temperature, Dextrostix, urinalysis, blood pressure, pulse, respiration, hematocrit, Pap smear, breast self-examination, counseling and EKG where indicated. Medical histories and laboratory results for 3,025 persons screened in 52 counties were reviewed by the Division Director and M.E.D.D. nurses. As a result, there were 428 referrals to private physicians or public health nurses.

Arkansas Hypertension Program

The goal of this new Program is to reduce, through education of professionals and the public, morbidity and mortality attributable to hypertension. Implemented through the Local Health Units, the Program maintains clinics for identification, referral and follow-up of Arkansas' hypertensive citizens.

High blood pressure, a health problem that affects an estimated 23,000,000 Americans, can result in strokes, heart failure and kidney failure if not treated.

Division of Emergency Health Services

Rules and Regulations, pursuant to the Emergency Medical Services Act 435 of 1975, were passed by the 1977 General Assembly and became effective July 6, 1977, thereby establishing criteria for licensure of services, permits for vehicles and certification of EMTs.

The Bureau developed an Interpretive Guide, and forms and procedures for implementation of the Rules and Regulations.

Training and certification of new EMTs continued with adoption of new tests, training of instructors and program development on both basic and advanced levels. A nurse-consultant was hired to assist in this development. Guidance was given by the State Training Committee appointed by the Governor's EMS Advisory Council.

Primary training sites were the vocational-technical schools. Other schools involved in training were various community colleges, the University of Arkansas Medical Sciences and Henderson State University.

During Fiscal Year 1976-1977, 1,439 Basic EMTs and 27 Advanced EMTs were certified.

Data forms were designed in cooperation with ambulance service providers. These forms were distributed and services became part of the first statewide data collection and evaluation system in the country.

The Consumer Information and Education Section developed and distributed materials for an intensive 21 county outreach effort, prepared news releases and exhibits and published a monthly newsletter, "THE ENCOUNTER."

II.

BUREAU OF

ENVIRONMENTAL HEALTH SERVICES

The Bureau's primary concern is "offering the citizens of Arkansas a comprehensive environmental health program of services to ensure a clean and healthful environment in which to live, work and play."

Division of Blood Alcohol

The Division of Blood Alcohol conducted a regulatory program in the area of DWI (driving while intoxicated) testing. Major activities were training of law enforcement officers; certification of all breath-testing instruments and operators; analysis of blood samples for alcohol content; collection of statistical information of DWI tests.

There are 135 certified installations at the local level (police departments and sheriffs' offices) with a total of 169 instruments in operation. Tests are performed on these instruments at the rate of 27,000 per year, increasing annually.

Division of Childhood Blood Lead Screening

Efforts were continued in identifying community areas which held the greatest risk for lead poisoning victims. This was determined by finding the areas of poor housing conditions in which the greatest number of children under six years of age are living. Peeling and cracking paint often is characteristic of deteriorating housing. While lead from lead-based paint is only one of the several significant sources of lead in the environment, it is by far the most important "high dose" source and cause of lead poisoning in children. In 1977, six percent of those tested were found to have elevated blood-lead level.

Division of Radiological Health

The Division of Radiological Health continued a comprehensive radiation control program designed to protect the public health and safety by preventing, or reducing to acceptable levels, as established by the National Council on Radiation Protection, the exposure of man and the environment to unnecessary radiation by regulating the use of and controlling all sources of ionizing and non-ionizing radiation. Program activities included: regulation of users of radioactive materials, x-ray machines and particle accelerators; environmental radiation monitoring of source-oriented nuclear facilities; emergency response to radiological incidents; monitoring of nonionizing (microwave) radiation. The radiation protection activities are available to all citizens of the State either as direct recipients of radiology services, as occupationally-exposed persons, or as members of the general public. A new quality assurance program, Breast Exposure: Nationwide Trends (BENT), was initiated in late 1977 to assist those physicians performing mammographic procedures to achieve the highest quality radiographic images with a minimum radiation exposure to the patient.

The Division again performed routine surveillance activities at Arkansas Nuclear One power generating plant on a weekly, quarterly and semi-annual basis. Analytical results indicated no appreciable increase in the environmental radiation traceable to the source-oriented facility. In late 1977 the Division began an environmental surveillance program to monitor radioactive plant emissions from the coal-fired Flint Creek Power Plant at Gentry, Arkansas. During September and October, in cooperation with the EPA and other Divisions of the Department of Health, the Division conducted an environmental sampling program to identify and monitor fallout radiation resulting from the Chinese Nuclear Testing of September 1977.

Division of Health Emergency Planning and Response

The Division of Health Emergency Planning and Response performed planning and coordination of emergency

health activities required to cope with nuclear, natural or man-caused disasters or incidents. Types of natural disasters or man-caused disaster incidents which necessitate response by Division personnel include tornadoes, earthquakes, floods, accidents involving radioactive material or hazardous materials such as pesticides, and incidents concerning industrial health.

In order to fulfill this mission, functions of the Division include the development of a preparedness program to ensure the readiness of State and local government to respond to emergency health needs in time of disaster, and coordination of all activities of the Department of Health's Emergency Operations Center. Assistance is provided to schools, clubs and other organizations in promotion of the Medical Self-Help Training Program. Use of the Packaged Disaster Hospitals which are stored in strategic locations throughout the State is coordinated through this Division.

Division personnel conducted and/or participated in a number of disaster exercises on local and statewide or area levels; 22,000 students received Medical Self-Help Training. Storage facilities and components of the 14 Packaged Disaster Hospitals received annual inspection.

Eleven counties became "Operationally Ready" to handle a nuclear war emergency. This was accomplished by appointing and training county RDOs, updating and exercising these counties' Emergency Operations Plans and training at least two monitors for each of the several monitoring stations which were designated per county.

Toxic substances and other materials, which if accidentally introduced into the environment pose definite public health hazards, are being manufactured and used within the State and are being transported across Arkansas. Consultants on hazardous materials were provided by the Division, as well as investigations and monitoring of pesticide activities, and determinations of the effects of these products on public health were made. Technical expertise and information (such as toxicity data, possible health hazards, etc.) pertaining to hazardous materials were provided on a 24-hour per day basis as need(s) arose. Sixty-two responses were made by Division personnel to incidents or inquiries concerning hazardous materials.

Division of Environmental Laboratories

The Environmental Laboratories Division has continued to provide chemical analytical services to Department users and other government agencies through the Food, Water, Pesticide, Radiochemistry, Childhood Lead Poisoning and Emergency Toxicology laboratories.

Analytical activities were 30,869 tests against 5,462 samples analyzed.

III. BUREAU OF ADMINISTRATIVE SERVICES

Services of this Bureau were provided by the Divisions of Accounting, Building Maintenance, Personnel and Management Systems. Equal Employment Opportunity, Affirmative Action and Workmen's Compensation Administration remained areas of vital responsibility.

Division of Personnel

The Division of Personnel provided advice and direction to all Division directors, supervisors and Local Health Unit and Regional Health Office administrators regard-

ing interpretation of personnel policies and procedures as established for State agencies by the Office of Personnel Management and Arkansas Merit System Council.

The Agency currently has approximately 1,400 employees in the Central Office, Local Health Units and Regional Health Offices. The Division continued to maintain personnel records; coordinated recruitment and all other employment practices for the Agency (salary advancements, promotions, terminations); established career ladders and counseled employees.

The Division cooperated with the Office of Personnel Management in maintaining and revising the Classification System.

Division of Accounting

The business management responsibility of the Health Department rests with the Division of Accounting. Among its support and financial control functions are budget coordination and preparation, fiscal monitoring, Federal grant administration collections and appropriations control. Financial management and budget analysis are important parts of the Division's services.

During fiscal year 1976-77, gross receipts amounted to \$30,100,000; disbursements totaled \$24,900,000.

Division of Management Systems

This newly formed Division is three-fold in its objectives. First, the Division is charged with the development of a comprehensive, user-directed system of managing information from a departmental perspective.

Second, the Division was formed to facilitate the development and maintenance of comprehensive systems for managing all resources, and to provide technical resources for management to decide where automated data processing is economically justified, efficient and best secured.

Third, the Division will operate a computing facility to take data as collected and perform those computing functions which will translate the data into meaningful information for users.

Needs of the users of data within the Department have been documented and a comprehensive plan has been developed for the design of a system which assures timely dissemination of accurate, meaningful information to users at all levels within the Agency. This will be in addition to continued data processing necessary to meet day-to-day needs of the Department.

Division of Building Maintenance

This Division maintains the building and grounds for the Department of Health physical facility. This includes janitorial services, repair services, security and general upkeep.

IV. BUREAU OF PLANNING, EVALUATION AND TRAINING

The staff of this Bureau assisted in 12 regional workshops and administered the Mortician's Assistance Grant supporting 15 students in an approved school of mortuary science; they assisted in establishing a Regional Health Office; administered the Workers' Compensation Program for the Agency and assisted 38 employees with job related injuries; served on a committee to evaluate and improve local health facility housing; assisted in hosting the

Southern Branch of the American Public Health Association's Annual Meeting; chaired a committee to document Public Health in Arkansas, completing 14 written histories and eight oral histories; assisted in securing 106 CETA positions for the State; represented the Bureau at 25 local meetings and two national meetings; coordinated activities of the Divisions of Health Statistics and Vital Records.

Division of Vital Records

Calendar Year 1976

In accordance with The Vital Statistics Act of 1965, Act 471, the Division of Vital Records recorded 33,299 live births, 21,132 deaths and 381 fetal deaths which occurred in calendar year 1976. All such certificates are bound in volumes and indexed by place and date of event.

Local registrars representing all districts in the State file birth and death certificates each month. Contact is maintained with the registrars, physicians, midwives, Local Health Units, funeral directors and hospitals in order to stimulate registration of these vital events.

Marriage records totaling 22,630 were received from county clerks of the State. Circuit clerks reported 17,398 divorces and annulments granted for the same period. Contact is maintained with these clerks to ensure complete, accurate registration.

In calendar year 1976, 19,550 copies of death certificates were issued to the county clerks of the State in accordance with Amendment 51 of 1965. Such information assists in maintenance of accurate voter registration records.

During 1976, 2,146 amendments were made to certificates filed in the Division of Vital Records. Of this total, 1,377 were adoptions, 323 were legitimations and 446 were changes of name. Delayed and prior birth records for this period numbered 8,045.

The number of copies of vital events issued during the year was 195,937. Of this number, 16,479 were plastic birth registration cards, 54,361 were of microfilm records and 125,097 were of paper records.

The Division of Vital Records completed converting to microfilm the original birth certificates for the years 1952 and 1953, and the original death certificates for the years 1958-1963, 1974 and 1975.

Division of Health Statistics

During the fiscal year ending June 30, 1977, the Division distributed 365 copies of 1976 "ARKANSAS HEALTH MANPOWER STATISTICS," 250 copies of the 1976 "ARKANSAS ABORTION REPORT" and 450 copies of 1975 Arkansas Vital Statistics summaries. The Division coded approximately 22,000 death certificates as to cause of death and answered about 250 miscellaneous requests for health statistics. The Division prepared, sent out, received, coded and computerized approximately 25,000 questionnaires on thirteen licensed health professions in Arkansas.

Division of Health Education and Information

The Division continued audio-visual library services and added 34 new films to the collection. Twenty-one new pamphlets were added to the literature catalog and more than a half-million pieces of literature were distributed

statewide, mainly through the Local Health Units. Films were shown to more than 192,000 viewers.

The staff conducted 22 workshops for nurses and teachers statewide and presented 165 educational programs to schools, civic groups and other organizations.

Department news stories and information articles on health related matters were released to the public via radio, television and newspapers. The Agency's Annual Report was compiled and edited by the Division and a monthly article was prepared and submitted to the Arkansas Medical Society Journal.

The staff conducted new employee orientation programs and tours for visitors, provided photography services and initiated an internship program for college students.

V. BUREAU OF PHARMACY SERVICES

The Bureau of Pharmacy Services consists of the Division of Drug Control, the Division of Central and Local Pharmacy Services and the Generic Drug Program.

Services provided by the Division of Drug Control included enforcement of laws and regulations through 317 inspections, 231 investigations and 25 accountability audits on handlers of controlled drugs and devices.

The Drug Destruction Program provided for destruction of 926,285 dose units of submitted controlled drugs surrendered by legitimate handlers, law enforcement personnel and the courts.

The Generic Drug Program, in existence since 1975, has resulted in a cost savings to the citizens of Arkansas of approximately four percent of their prescription drug purchases.

The Division of Central and Local Pharmacy Services, in addition to filling 7,419 orders, distributing 2,463,533 items of drugs and supplies used in health programs, projects and special clinics throughout the State, provided information and consultation on drugs and pharmacology and services. The expenditure for items purchased was \$680,515.

VI. BUREAU OF MEDICAL CARE SERVICES

The Bureau of Medical Care Services, charged with providing comprehensive health care for the citizens of Arkansas, places emphasis on programs which are preventive in approach and innovative in design.

Division of Maternal and Child Health

The twenty-six programs sponsored and/or administered by the Division are oriented directly to improving the health of mothers and children.

In an effort to discover possible abnormal conditions in children early and prevent them from becoming debilitating, MCH conducts a series of programs whose purpose is to assess children of all ages for various health and/or mental problems. The seven projects offered, most of which are on the statewide level, follow a child's development from birth through adolescence. All of these programs operate through a system of referral for further diagnosis of a suspected problem. No child who is thought to have a developmental problem is left to fend for himself. These programs provided 309,594 screenings in Fiscal Year 1976-1977.

For those mothers and children who have a serious problem, or are at high risk, the Division provides pallia-

tive services. This vital component draws upon the expertise of professional institutions in the State, most notably the University of Arkansas for Medical Sciences and the Arkansas Children's Hospital. The combined efforts of these institutions establish comprehensive care of high quality. High risk maternal and infant patients served last year totaled 33,329.

For those persons whose health is comparatively stable, MCH provides routine health maintenance through eight programs, each of which serves a certain portion of the population. Health supervision, with prevention as the paramount objective, is offered through local clinics in most urban and rural areas. Obstetric and pediatric clinics serve the majority of MCH patients. Emphasis is placed on good and continuous care for the pregnant patient during her pre-, peri- and post-natal periods, and caring for the resultant child during formative years. Obstetrical and/or family planning services were extended to 129,636 women during Fiscal Year 1976-1977. Well child clinics treated 22,385 children.

All these programs require ancillary supportive services in several areas. Vital areas such as social services, outreach, transportation, counseling and follow-up are provided through several project endeavors. The dedicated employees of these programs served 25,209 individuals.

Division of Nutrition Services

Authoritative guidance in food selection, both in health and in disease, is an essential component of public health services directed toward proper health maintenance and health protection and disease control. The Division strives to accomplish this public health goal by providing consultative, educational and service programs in normal and therapeutic nutrition to all pertinent Divisions in the Department of Health and to all Local Health Units.

In Fiscal Year 1976-1977, 10,500 mothers and children received counseling on nutritional problems in childhood and pregnancy; 3,508 individuals on therapeutic diets were counseled; consultation services in normal and therapeutic nutrition were provided to 2,152 professional workers. Approximately 210,000 copies of educational materials on normal and therapeutic nutrition were distributed throughout the State during the year.

Division of Social Services

This Division coordinates and supervises the social service components of various Maternal and Child Health Programs (Early and Periodic Screening, Diagnosis and Treatment Program, Children and Youth Project, Maternity and Infant Care Project, Arkansas Regional Perinatal Program; maternity and family planning clinics held in the State).

The Division's unique structure allows each program to have the concerted efforts of personnel assigned only to that program. This system fosters individualized services within a program while ensuring consistent quality throughout the Division. The social problems concomitant with health problems are multiple and have a direct bearing on the public's acceptance of and participation in health services. This important link is a main concern of the Social Services Division.

Division of Dental Health

The Division provides and/or supervises direct dental

services for Arkansas families who, for reasons beyond their control, ordinarily would not receive such care.

These services provide diagnostic, preventive and restorative dental care throughout the State in strategically located clinics. The Handicapped Children's Dental Clinic services include reparative treatment, preventive care and occasional dental surgery for physically and/or mentally handicapped children. Over 1,500 persons received care in Fiscal Year 1976-1977 through the provisions of the Division.

Division of Communicable Diseases

Five programs comprise the Division of Communicable Diseases: Epidemiology, Immunization, Venereal Disease Control, Tuberculosis Control and Veterinary Public Health.

The Epidemiology Program component (general communicable diseases) continued to combat infectious disease in the State by maintaining surveillance of disease (through the use of a toll-free telephone line and a code-a-phone recorder for reporting), investigating epidemics and instituting appropriate control measures. Investigations of disease outbreaks in 12 counties were carried out in Fiscal Year 1976-1977.

Every County Health Unit, immunization personnel and countless others were involved in 1976 in a massive effort to immunize the citizens of Arkansas against swine flu. Despite numerous problems with the National Influenza Immunization Program, 185,000 residents had been immunized when the Program ended.

The Tuberculosis Control Program reported an 11 percent decline in tuberculosis morbidity from 1975 to 1976. This reduction was due, in part, to improved reporting. The Program instituted a new therapy protocol with two bactericidal drugs to compliment the ongoing programs of tuberculosis control in the State prisons, chest symposia and academic studies.

Although venereal diseases continue to be the leader among reportable communicable diseases in the State, a decreasing trend was evident in 1976 in the total cases reported. An effort has been made to provide educative materials and information to schools through workshops, teachers' handbooks and other means. Over 30,000 pamphlets were distributed last fiscal year by the Division of Health Education which coordinated the distribution of venereal disease films which were seen by over 18,000 students.

During Fiscal Year 1976-1977, the Veterinary Public Health Program continued to provide protective and consultative assistance to citizens of Arkansas who were exposed to animal diseases transmissible to man. Requests for information and assistance came from physicians, veterinarians, Local Health Units and individual citizens. Assistance was provided by telephone, correspondence and personal visits. A representative from the Division continued to visit practicing veterinarians, Local Health Units and other local officials, when necessary, to answer questions and to provide information on public health needs of local communities. The general public was kept informed of veterinary public health problems by timely news releases and by numerous appearances before civic, municipal and school groups, when talks, supplemented by movies or slides, were given.

There were 186,072 pet animals vaccinated against rabies, 147 laboratory-confirmed cases of animal rabies and 2,199 incidents of animal bites of humans. The Arkansas Department of Health provided rabies post-exposure vaccine and serum, at cost, to private physicians for treatment of 113 individuals.

VII. BUREAU OF CANCER AND SPECIAL SERVICES

Early detection of cancer of the cervix in high risk women has been a high priority in Local Health Unit activities. Supported by The National Cancer Institute and by programs of the Division of Maternal and Child Health, the Bureau directs the Cervical Cytology Screening Program. In the first 20 months, over 54,000 women were screened.

Regional clinics have been established in 13 areas of the State to provide for out-patient colposcopically-directed biopsy diagnosis when indicated by abnormal cytology and needs of the patient. Eighteen invasive cervical cancers were found, giving a rate of 0.33/1000 women screened. Servical dysplasias were diagnosed in 6.15/1000 screened.

The Arkansas Cancer Registry, a hospital-based data collection system, provides accession to the cancer registry for cancer patients; a lifetime follow-up on cancer patients; a mechanism for retrieval of data. Data variables include primary anatomic site, extent of disease and methods of treatment. In 1977, the 14 hospitals reporting to the Arkansas Cancer Registry processed a total of 4,062 patients diagnosed for cancer, and 10,099 followup reports. Since 1935, 61,580 patients have been acceded to the Arkansas Cancer Registry.

VIII. BUREAU OF HEALTH FACILITY SERVICES *Division of Administrative Operations*

This Division investigates all complaints received concerning medical facilities to ascertain their validity and helps correct situations causing potential harm to patients. This Division conducts a quarterly visit program in all nursing homes. Last year, under this program, each facility was visited a minimum of four times. Each visit evaluated the facility compliance with State Regulations for Nursing Homes. Another responsibility is to assure that all nursing homes have qualified administrators by administering a license to each nursing home administrator. Each administrator must obtain a minimum of 20 hours of educational credit annually. To make certain these hours are available, 40 hours of educational workshops are conducted and another 150 hours are approved. Additional educational activities are offered to other health care professionals (e.g., dietitians and registered nurses). Another responsibility is to license all 238 health care facilities in the State. Each facility must be evaluated annually to assure compliance with State Regulations before receiving a renewal license. This past year a renewal license was issued to each of 238 health care facilities and 400 nursing home administrators.

Division of Hospitals

The Division surveys the operational aspects of hospitals to assure compliance with State licensure requirements as well as Medicare certification requirements. The Divi-

sion certifies the following facilities to participate in the Medicare program: 81 home health agencies, 16 independent diagnostic laboratories, 19 renal dialysis facilities, one out-patient physical therapy center, 11 physical therapists in independent practice and certification of chiropractors. Certification will begin March 1, 1978 for rural health clinics.

Division of Nursing Home Certification

In accordance with an agreement with the Department of Human Services, the Division is charged with the responsibility of surveying nursing homes for quality of care to determine their eligibility for participating in the Title XVIV (Medicaid) Program. During the past calendar year, 222 nursing home surveys were performed (82 in skilled care homes, 140 in intermediate care homes). They resulted in 850 unannounced nursing home surveys during the last year. Six surveys of mental retardation facilities were made and seven skilled nursing care facilities were surveyed for utilization review activities.

Division of Facility Design and Construction

The Division has the responsibility of reviewing all new construction plans of medical facilities and conducting onsite inspections to ascertain compliance with State and local standards. Other programs include enforcement of Act 122 of 1967 which requires that buildings constructed with public funds be accessible to and usable by the physically handicapped; administration of the now expired Hill-Burton Program. Twenty projects started in the past two years have not been finalized but they should be completed and in operation within the next two to three years. Recently completed projects include the Johnson County Hospital, a new 68-bed facility; the Independence County Sheltered Workshop in Batesville; the Faulkner County Public Health Center in Conway.

Division of Public Health Laboratories

The Division provides laboratory services and consultation, particularly in the areas of microbiology and clinical chemistry, to Divisions of the Arkansas Department of Health, the Local Health Units, Regional Health Offices and medical providers (physicians, dentists, veterinarians, hospitals, clinics and other laboratories) throughout the State. These services are categorized in four program areas: Medical Microbiology, Sanitary Bacteriology, Clinical Chemistry and Hematology and Laboratory Improvement.

In the Medical Microbiology Program, activity is concerned mostly with detection of the agents of communicable disease. Last year, 237,000 specimens were received for examination for tuberculosis, syphilis, gonorrhea, strep throat, salmonellosis, shigellosis and other infectious diseases. The Strep Throat Program for detection of beta hemolytic streptococci remains popular with pediatricians and our workload increases yearly, as does the Gonorrhea Screening Program, despite deliberate cutbacks in service to unproductive areas. The Virology Laboratory continues to broaden the base of services available, this year expanding Rubella screening to all health department clinics and offering St. Louis Encephalitis serology to meet the challenge of that epidemic along the Mississippi River. Our role as a reference laboratory to the other clinical laboratories in the State has been increasing steadily and is expected to continue to increase.

In Sanitary Bacteriology, tests were run on 56,760 specimens for determining the safety of milk, food and water. The workload in the Milk Laboratory has been increased by additional testing on manufacturers' milk, cheese, ice cream and other related products, and by greater surveillance of vendors of soft "ice creams." Water sampling has been increased by addition of new community supplies and will continue to rise under the standards of monitoring for the Safe Drinking Water Act. Surveillance of ready-to-eat food products has increased markedly.

The Clinical Chemistry and Hematology Programs continued to provide necessary services for operation of Health Department Clinics and for newborn screening for sickle cell and PKU. The programs received 64,825 specimens for examination.

In the Laboratory Improvement Program, designed to assist and guide clinical laboratories throughout the State, 124 premarital laboratories were monitored and certified and proficiency testing in microbiology was offered to 58 others. Bench training and short training courses were given.

The Central Scientific Services Section continued to prepare and ship thousands of bottles, test tubes, shipping containers, kits and other supplies to those utilizing the Division's services. The Administrative and Clerical Section prepared, checked, duplicated and filed all reports on specimens received.

Division of Sanitation Services

The Division strengthened the staff to include 130 field sanitarians as a result of legislative enactments which brought about a need for expansion (e.g., the Arkansas Sewage Disposal Systems Act, Act 357 of 1977 which requires licensing and collection of permit fees for all food service establishments; the Arkansas Milk Program Act). Twelve districts have been formed and a sanitarian supervisor placed within each district to coordinate and control the activities and responsibilities of the sanitarian.

Food Products Section

The objective of the Food Products Section is to ensure that food handling facilities meet department standards in operation. This is done by monitoring retail food products for filth, insects and economic fraud and by providing education seminars and technical supervision for county sanitarians.

During the year, 369,614 pounds of distressed food were destroyed, reconditioned or converted to animal feed as it was found to be in violation of the Arkansas Food, Drug and Cosmetic Act. The expanding economy was reflected by the review of 1,026 food handling establishment plans. The Section issued 7,980 food service permits and 39 food salvage licenses. Twelve food workshops were conducted and lectures were given for schools and professional groups.

Milk and Dairy Section

The direct regulatory control of all Grade A milk produced and processed in Arkansas was transferred to the Arkansas Milk Program under the supervision of the Arkansas Department of Health. The change made possible allocation of resources to improve the regulatory program for manufacturing grade milk used in produc-

tion of cheese, evaporated or condensed milk and frozen desserts.

In addition to routine Grade A sampling, 2,558 manufacturing grade milk samples, including frozen desserts, were collected and analyzed to assure consumers receiving safe dairy products.

General Sanitation Section

This Section, created to assume administrative authority over all existing and proposed laws and rules and regulations pertaining to the field of general sanitation, is responsible for administration and enforcement of all applicable laws and regulations concerning residential and commercial sewage disposal, private and semi-public water supplies, public swimming pools, hotels and motels, tourist and travel trailer parks, septic tank pumpers and any related environmental situations that may be detrimental to the public health.

This Section has been responsible for implementing an inspectional and monitoring program to register and license all individuals engaged in septic tank cleaning operations within the State. The program was prepared and implemented to comply with provisions of Act 71 of 1973.

Under provisions of Act 402 of 1977, a statewide inspectional program has been incorporated to regulate installation, construction and repair of individual and commercial sewage disposal systems. All individuals engaged in the business of installing these systems are regulated under this Act.

FDA Contract Section

The Arkansas Department of Health obtained a twelve-month extension to its original 1972 Contract with the U. S. Food and Drug Administration for operations during Fiscal Year 1976-1977.

There were 583 inspections/re-inspections conducted of bakeries, food warehouses and bottling plants, 123 inspections/re-inspections of terminal restaurants, conveyance catering facilities and servicing areas and vessel watering points over the State. During the 706 inspections, 239 food and filth samples (consisting of 684 subsamples) were collected for laboratory analysis.

Inspections resulted in volunteer corrective actions being made at a cost of \$340,075 to food-related establishments. Defiled foods valued at \$7,340, and weighing 24,536 pounds, were destroyed voluntarily by industry.

Five hearings were held with consistently violative food firms which showed reluctance to comply with applicable Federal and State laws. The hearings led to compliance with each firm involved. In addition, one voluntary closure was obtained.

IX. BUREAU OF PUBLIC HEALTH ENGINEERING

The Bureau has provided administrative guidance and coordination of the three Divisions existing within the Bureau. An effort has been made by all of the Divisions to reach the ultimate goal of prevention of environmental hazards before they actually become significant public health problems. Major areas of accomplishment were implementation of Rules and Regulations pertaining to licensing of hospital maintenance plumbers in the Division of Building Safety; application for and approval of Federal funds for the Division of Engineering to ad-

minister the Safe Drinking Water Act; expansion of the monitoring and training programs for St. Louis Encephalitis.

Division of Engineering

The Division of Engineering continued to work toward the goal to maintain a healthful environment, free of waterborne diseases and toxic materials, by providing regulation of public water and wastewater facilities and other health-related problems.

Program services provided by the Engineering Division were:

1. Review of plans and specifications for all public sanitary facilities to ensure that no public health problems are built into the facilities. Plans (1,391) were reviewed for water, wastewater, swimming pools, cemeteries and individual sewage disposal projects.
2. Monitoring and field surveillance of all public water supplies to ensure that the public is served safe drinking water. A population of 1,493,000 was served by 542 public water systems in Arkansas. The results of 49,400 bacteriological examinations showed that 96 percent of the population served by public water supplies was consuming bacterially safe drinking water. The results of 1,721 chemical examinations showed no chemical contaminants in amounts which would be hazardous to the health of water consumers.
3. Ninety-six meetings were conducted for the purpose of training and certification of water works managers and operators to assure competency and efficiency of water works operations. Water works examinations were given to 388 operators; 113 water works operators were certified.
4. Specialized public health and engineering assistance was given to municipal water and wastewater departments, Local Health Units, Regional Health Offices and various State and Federal agencies. Engineering consultations (3,819) were provided to various officials; 170 sanitation problems were investigated.

The water supply program of the Division of Engineering was expanded to regulate all water supplies having 15 connections or serving 25 persons. Eventually, an estimated 2,000 water supply systems will be regulated.

Division of Building Safety

The Division of Building Safety activated a licensing program for hospital maintenance personnel in 1977 through combined efforts of the Division and the Hospital Engineers Association.

Review of plans and specifications for compliance with the Arkansas Plumbing Code increased to a total of 809, an increase of 50 percent for the year. The number of inspections made during the year was 3,147, an increase of 58 percent; the number of investigations was 839, an increase of 56 percent. These increases were accomplished without additional personnel.

The Division's on-going cross-connection survey program continued in operation. This program, and an area training program for local plumbing inspectors, will be accelerated as additional personnel become available.

Division of Vector Control and Recreation

The St. Louis Encephalitis Monitoring Program was expanded to include 12 cities with mosquitoes and bird

blood analyzed for the disease. Bird blood samples were submitted to the Health Department's Bureau of Laboratories where St. Louis Encephalitis antibody levels were determined. Since birds are the natural reservoir of the virus, any rise in antibody levels indicates the presence of the virus in our environment. Vector mosquitoes from the 12 towns were submitted to the University of Arkansas Entomology Department where they were individually tested for St. Louis Encephalitis. The mosquito testing method being developed under this program may revolutionize St. Louis Encephalitis surveillance in that the presence of the virus can be determined directly and quickly from individual mosquitoes. The Division of Communicable Diseases is cooperating with the program by providing funds, personnel and expertise.

A Mosquito Control Training Course was conducted in Pine Bluff, with 21 sanitarians and city personnel in attendance. A seminar on Poultry and House Fly Control was held by Division personnel at Hope.

The Division participated in removal of pigeons from nine locations. Eight blackbird roosts were surveyed and seven of the roosts were relocated in an effort to prevent histoplasmosis. Division personnel assisted with four bat control programs to reduce human exposure to rabid bats in Arkansas.

The Community Improvement Program (Rat Control) completed its fourth year of funding through the Department of Health, Education, and Welfare. The program's primary objective is to reduce the rat population by use of chemical rodenticides and improving community environment. In three target cities, 274 blocks were surveyed and 4,136 individual premises were inspected for rat infestation. The amount of anticoagulant rat bait distributed statewide was 28,100 pounds. Division personnel poisoned six open dumps to prevent rats from migrating to other areas. The dumps subsequently were closed and replaced by sanitary landfills.

Medical Education Foundation for Arkansas Robert Watson, M.D., President

The Medical Education Foundation for Arkansas has continued to reflect conscientious stewardship of the funds entrusted to it. Through cautious management, the funds continue to grow toward a meaningful goal. For the year 1977, interest income and memorial contributions totaled \$5,405.35. All along, your Foundation has followed the plan to "spend a little and save a little" toward eventually building a self-perpetuating fund. This goal is now being reached.

Following consultation with the Medical School, the Liaison Committee with the Medical School and others, as recommended by an earlier reference committee, a pilot series of lectures was presented at the Medical Center. These lectures were financed through the Department of Student Supplemental Education at no expense to the Medical Education Foundation for Arkansas. Through this procedure, valid conclusions could

be used as an indicator of student interest and acceptance. This series of presentations was not well accepted as indicated by a student voluntary attendance ranging from a sparse few to none at all.

This experience has forced us to revise our planning. Present arrangements are that varied departments will, each year, be provided with sufficient funds from the Foundation's annual income to provide financing for speakers of merit who will give lectures appropriate to specific student levels. This lecture is to be known as the Arkansas State Medical Society Series and it will be given as a regularly scheduled classroom responsibility. By doing so, the embarrassing consequences possibly associated with voluntary student attendance will be avoided.

As now planned, the presentations are to be given on four or more occasions each year. They are directed to bring to the students a practical correlation between certain classroom presentations and their clinical applications.

Credible speakers of national recognition are being selected and the Arkansas Medical Society is to be identified as the donor of these quarterly scheduled presentations.

The first classroom presentation is to be made to freshmen students in Neuroscience at the Medical Center at 1:00 p.m., Monday, March 6. The presentation will be given by Dr. James Bloedel, M.D., Ph.D., of the University of Minnesota School of Medicine. His subject is "Sensory-Motor Integration."

This is to be a scheduled classroom presentation for the freshmen students. It is suitable for clinical adaptation by all physicians dealing with patient problems of the brain and nervous system. All physicians of Little Rock and elsewhere over the state are invited.

The Medical Education Foundation for Arkansas is committed to spend its funds in a manner that will promote medical education in Arkansas and this Board asks for, and will appreciate, suggestions directed toward a fulfillment of this commitment.

Report from the Arkansas Medical Political Action Committee W. P. Phillips, M.D., Chairman

The Arkansas Political Action Committee closed the 1977 year with 262 members, of which twenty were sustaining. Four members of the

Board of Directors completed their terms. They were Dr. Kemal E. Kutait, Dr. James L. Smith, Dr. E. L. Hutchison and Dr. Sybil Hart. New members elected were Dr. Ken Lilly of Fort Smith, Dr. Raymond Biondo of North Little Rock, Dr. Jerry Mann of Arkadelphia, Dr. Donald Duncan of Texarkana, Mrs. Carl Wilson and Mrs. Kemal Kutait, both of Fort Smith.

The Board of Directors met in December in Little Rock to hear Attorney General Bill Clinton give his analysis of the 1978 elections. Mr. Clinton has since that meeting indicated that he will be a candidate for Governor in the next election.

The Ark-Pac Board will shortly consider its priorities for the 1978 elections. We feel that personal involvement of physicians and their families in the political process is a necessity for the survival of our profession as we now know it.

The board does not feel it has the prerogative to choose for the physicians of Arkansas which candidates are important to your future. What it does hope is that each physician and each Ark-Pac member will carefully evaluate the races in his area and decide where his political time can best be spent.

Ark-Pac is calling upon all members of the State Medical Society to become politically involved. The board hopes to participate in education by supporting financially such programs as the County Liaison Educational Meeting in Little Rock January 29th.

Report of AMA Meeting December 4-7, 1977

Chicago, Illinois

Purcell Smith, Jr., M.D., Delegate

This summary covers many of the subjects considered during the interim convention in Chicago, but is not meant to be a complete report of all actions taken. The December 12, 1977, issue of *American Medical News* contains more comprehensive information:

AWARDS:

Dr. William P. Longmire, Jr., of Los Angeles, California, was chosen to receive the Distinguished Service Award at the 1978 Annual Convention. Dr. Luis Martin Perez, an internist and cardiologist from Sanford, Florida, received the Benjamin Rush Award for citizenship and public service. Awards to laymen were given to J. Ed McConnell, retired president of Kentucky Blue

Cross-Blue Shield, and John Alexander McMahon, president of American Hospital Association.

REPORT OF THE AMA PRESIDENT:

Dr. John H. Budd, American Medical Association President, called for unity and a policy of "aggressive moderation." He noted that "moderation, like medicine taken in the proper dosage, can be the only effective remedy for a problem. Tempering, after all, is what converts soft iron into hard steel." In calling for unity, Dr. Budd said "No individual physician, regardless of how big he may feel, can stand up to Big Government. No splinter group can be anything more than a splinter at a time when we must be a forest of strength."

SUMMARY OF ACTIONS OF THE HOUSE OF DELEGATES:

I. Association and Internal Matters of the House:

National Medical Specialty Society Representation: The way is open for National Medical Specialty Societies to participate directly in AMA policy-making at the 1978 Annual Meeting. The House of Delegates adopted criteria to provide one delegate seat in the House to any specialty society that was represented on an AMA Section Council in 1977 and (1) has at least 1,000 AMA members, or (2) represents a specialty for which there is an approved examining board listed in the Liaison Committee on Graduate Medical Education's Directory of Accredited Residencies.

Qualifying societies that apply for representation will have their delegates seated at the Annual Meeting next June. Those that do not apply before the first day of the 1978 Interim Meeting must be approved for representation by both the Board of Trustees and the House of Delegates. Thirty-seven specialty societies now have 1,000 or more AMA members. Eleven others have fewer than 1,000 AMA members, but have been represented on Section Councils and represent specialties with approved examining boards. The Section Councils will be retained as official components of the AMA to provide a mechanism for the deliberation and study of the scientific, educational, and other interests of the specialty disciplines.

Dues and Financial Matters: The 1978 AMA budget of \$52.1 million was approved; the budget includes a projected \$10.1 million operating

profit that, combined with the \$15.6 million profit in the 1977 fiscal year, will raise Association equity to \$66.7 million by December 1, 1978. The 1978 budget is based on payment of full \$250.00 annual dues by 147,500 members (up from 144,614 in the year just ended). Membership among medical students and housestaff, who pay reduced dues, also is up sharply, giving the AMA a total dues-paying membership of 172,998.

The House of Delegates adopted a program to improve AMA dues billing and remittance procedures. The criteria, proposed by the American Association of Medical Society Executives, and approved by the Board of Trustees, will become effective with the billing for 1979 dues.

II. *Physicians and the Government:*

Amphetamine Package Inserts: Proposals by the Food and Drug Administration to change the physician's package inserts for some amphetamines were attacked by the House of Delegates as an unwarranted intrusion into the practice of medicine. While it was agreed that some physicians prescribe amphetamines illegally and unethically, there was concern over the government restriction rather than encouragement of voluntary limitation of the use of these drugs by physicians.

III. *Physicians and the Public:*

Comprehensive Health Insurance: By a vote of 178 to 46, the House of Delegates reaffirmed support for the AMA's Comprehensive Health Insurance Program, the proposal now in Congress as HR 1818 and S 218. Urging the House to "adopt the united front that will be needed to keep the profession effective in its activities in the future," the reference committee said it felt "compelled to observe that the issue of support of a program of comprehensive health insurance has been one of the most divisive issues for the profession in recent years. It has been a time-consuming but necessary debate."

Opposition to Third-Party Differential Payment: A resolution opposing third-party differential payment for the services of participating and non-participating physicians was adopted by the House. The resolution said such programs discriminate against physicians who do not have separate contractual relationships with the carrier and inhibit the free choice of physicians by patients.

Report of National Commission on the Cost of Medical Care: The National Commission on the cost of Medical Care, after working 18 months under the auspices of the AMA, has issued a summary of its report containing 48 recommendations. The complete report will be published early next year. The 30-page summary was distributed to members of the House of Delegates and was in the December 5th issue of *American Medical News*, but action on the recommendations was deferred until 1978 Annual Meeting.

Voluntary Cost Containment Program: The first meeting of the National Steering Committee to develop a Voluntary Cost Containment Program is scheduled for December 12, 1977, in Washington, D. C. The Committee was established by AMA, American Hospital Association, and the Federation of American Hospitals. The AMA House of Delegates urged state medical societies to begin discussions with state hospital associations so that state level committees can be established as soon as possible to implement the Voluntary Cost Containment Program.

IV. *Physicians and Hospitals and Medical Schools:*

Cost-Awareness Programs for Medical Students and Physicians: Cost-awareness programs for medical students and physicians were called for by the House of Delegates. Through its representatives on the Liaison Committee on Medical Education, the AMA will encourage all medical schools to institute or augment programs designed to increase the understanding of students, house staff, and faculty of the cost of health care. In a related action, the House adopted a policy urging physicians to volunteer fee information to their patients and called for development of an AMA program to encourage and assist physicians in making such information available in their offices.

Staff Privilege Decision by Individual Hospital: The individual hospital should determine which health care practitioners are granted clinical privileges, according to policy approved by AMA House of Delegates. The determination of which physicians and other classes of health care practitioners shall be granted clinical privileges in the hospital shall be established at each particular hospital in accordance with community needs and applicable state laws and regulations.

Continuing Medical Education: The House of Delegates reaffirmed the AMA's support for active participation of state medical societies in the continuing medical education process.

Diversified First Year Graduate Medical Education: Though the rotating internship may be a thing of the past, the AMA House of Delegates decided that there is still a need for diversified first year of graduate medical education. The first graduate year should include a structured opportunity for total patient care prior to specialization, according to the report of The Council on Medical Education.

V. *Miscellaneous Actions of the House:*

AMA-ERF reported that more than \$5.33 million in guaranteed loans for medical students and \$1.18 million in grants to medical schools were made during the first nine months of 1977. Approximately 3,800 students and physicians in training programs benefitted from the AMA-ERF guaranteed loan fund during that period. Over \$80 million dollars in loans have been arranged and guaranteed since the program began 15 years ago. The assets of all the various funds that are part of the AMA-ERF program were increased by \$134,000 during the first nine months of 1977, while contributions and gifts for the period totaled \$1,350,685.

Report of the

Arkansas Foundation for Medical Care

Paul C. Schaefer, Executive Director

In 1972, the Arkansas Medical Society founded the Arkansas Foundation for Medical Care which, under contract with the Department of HEW, is the Professional Standards Review Organization (PSRO) for the State of Arkansas.

The Foundation has experienced rapid growth, and now has a staff of 20 full-time equivalent personnel and a budget of approximately \$650,000.

The Foundation has fully implemented its program of concurrent review and medical care evaluation studies in all 96 acute care hospitals in the State. During 1977, 167,000 federally-funded patients were reviewed as to the necessity of admission and continued stay as a hospital inpatient. In addition to this, over 399 medical care evaluation studies have been reported to the Foundation. These studies designed to impact on quality have been performed, for the

most part, by delegated hospitals or hospitals participating in the regional Medical Care Evaluation program of the Foundation. Forty-seven hospitals voluntarily participate in this regional program.

The Board of Directors and the professional committees of the Foundation have assured that decisions affecting the necessity and quality of care of Federal patients have remained in the hands of local physicians.

The officers and members of the Board of Directors are as follows:

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The Professional Review Committee has routinely met on a quarterly basis. This committee has full responsibility for modifying or changing a hospital's delegated status in regard to concurrent review and is responsible for evaluating the effectiveness of utilization and concurrent review procedures in all delegated hospitals. This committee is composed of the following:

John E. Bell, M.D., Searcy
Maxwell Cheney, M.D., Mountain Home
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Wayne G. Elliott, M.D., El Dorado
James Gardner, M.D., Hot Springs
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William F. Turner, M.D., Fort Smith
Wayne Workman, M.D., Blytheville

The Medical Care Evaluation Committee of the Foundation functions as the quality assurance committee, with primary responsibility for changing or modifying a hospital's delegated status in regard to MCE's. This committee further evaluates all medical care evaluation studies performed and reported to the Foundation and makes recommendations as appropriate. This committee has also routinely met on a quarterly basis.

The members of this committee are as follows:

William E. Bann, D.O. (Osteopath), Texarkana

L. J. Patrick Bell, M.D. (Family Practitioner),
Helena

Paul J. Cornell, M.D. (Obstetrics & Gynecology),
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Daniel C. McKinney, M.D. (Pediatrician), Pine
Bluff

James L. Smith, M.D. (Ophthalmologist), Little
Rock

Rhys Williams, M.D. (Surgeon), Harrison

An Advisory Council chaired by Mr. Mike Kumpuris, Assistant Administrator of St. Vincent Infirmary in Little Rock, has met on a quarterly basis and has been responsible for opening communication lines and developing liaison between the AFMC and the various professional associations and organizations within the State. This committee is also responsible for developing programs to encourage involvement of health care practitioners other than physicians in the peer review processes.

The Foundation has been selected by DHEW as one of 10 PSRO's in the country to develop and implement an experimental program in ancillary services review. It is hoped that the results of these various experiences will result in a review methodology which will continue to assure improved quality in ancillary services.

Although Arkansas is considered a small rural state, our state-wide PSRO ranks as one of the largest in the country. The Arkansas Foundation for Medical Care ranks:

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In the top 14%, based on number of hospitals.

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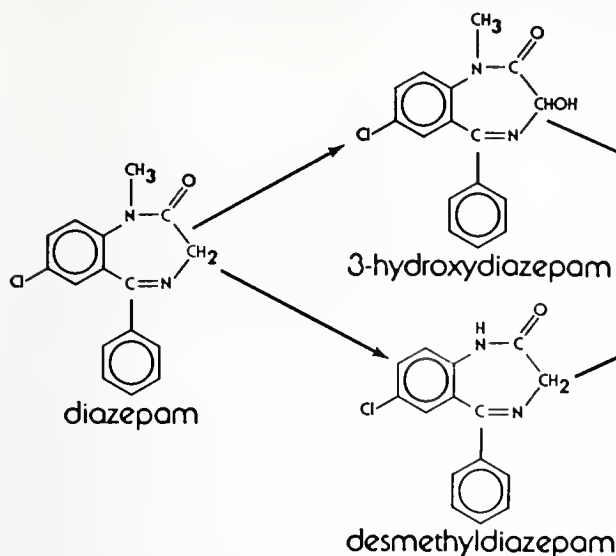
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physician should periodically reassess the usefulness of the drug for the individual patient.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Importance of Entire Small Bowel Examination During Exploration

S. Wright Hawkins, M.D., F.A.C.S.*

Usually when suspected acute appendicitis is not found at operation, in addition to other exploration, the last twenty to twenty-four inches of terminal ileum is examined and searched for a Meckel's diverticulum.

I had just read a recent article by Roses, et al,¹ on Perforated Diverticula of the Jejunum and Ileum, which led me to examine the entire small bowel and prompted the following report:

A thirty-two-year-old white female was admitted to St. Edward Medical Center on December 1, 1976, with stabbing right lower quadrant pain of two days duration. The pain became worse around 4:00 p.m. the day of admission. There was associated nausea and vomiting and the patient had three to four loose stools during the day. She stated that it hurt to walk or take a deep breath.

Physical examination revealed temperature to be 99, pulse rate 120, respirations 24, and blood pressure 140/80. Positive physical findings were limited to the abdomen. There was marked tenderness, rebound tenderness, and muscle guarding in the right lower quadrant.

Complete blood count revealed WBCs 16.5, RBCs 4.72, Hgb 13.8, Hct 40.2, Stabs 4, Polys 76, Lymphs 11, Monos 8, Eos 1.

*Waldron Road at Ellsworth, Fort Smith, Arkansas 72903.

An acute abdominal series showed no free air. A few loops of small bowel were seen in the mid abdominal region without evidence of obstruction. The patient was scheduled for emergency surgery with a preoperative diagnosis of acute appendicitis.

Abdominal exploration revealed a normal appendix, no mesenteric adenitis or Meckel's diverticulum. The remainder of the small bowel was examined and an ileoileointussusception, about 3.5 cm. in length, was found in the upper ileum. After reduction, palpation revealed no polyp or other lead point for the intussusception. Appendectomy was done and the abdomen was closed. The patient made an uneventful recovery and was discharged on the fourth postoperative day.

Comment: In all probability, if the entire small bowel had not been examined, the patient would have required an additional operative procedure and possibly a small bowel resection.

In the future I will no longer be satisfied with examining the last twenty to twenty-four inches of the terminal ileum in patients with otherwise negative findings at exploration.

REFERENCE

1. Roses, D. F., et al.: Perforated diverticula of the jejunum and ileum. *Amer. J. Surg.* 132:649, 1976.



Ocular Vitrectomy*

R. Sloan Wilson, M.D., and James H. Landers, M.D.**

Recent developments in surgical instrumentation allow the removal of vitreous opacities from blind eyes.^{1,2,3,4} In many cases, partial or complete restoration of sight has been possible, depending on the etiology of the opacities and/or coexistent vitreoretinal disease. Two approaches to the vitreous are popular:

1. Anterior — extracting the vitreous through a cataract incision.
2. Posterior (pars plana) — necessitates a delicate infusion-suction-cutter instrument.

Both approaches are accomplished under microscopic control either with or without a fiberoptic illuminator of the vitreous cavity.

Indications

Severely diseased eyes which previously had no hope of restoration are possible candidates. Successful candidates include those which harbor vitreous hemorrhage, persistent vitreous strands, lens remnants or other media opacities such as amyloidosis⁵ and have not cleared after six to nine months. There must be evidence of retinal function (peripheral vision, light projection, color perception, ERG or B-Scan ultra sound). Most cases of unresolved vitreous opacification occur in diabetes, retinal detachments or following trauma (Table 1).

Instrumentation

The instrumentation which has made these procedures possible is quite sophisticated. Pop-

ular instruments are the Roto-Extractor of Douvas, VISC of Machemer, or the Ocutome of O'Malley. In general, they combine the infusion of fluids (usually Ringer's) with a fine tip for cutting and suction under microscopic control (Figure 1*). For illumination of the vitreous cavity, a fiberoptic attachment is essential.

Surgical Technique

1. Anterior Vitrectomy

This approach is satisfactory for anteriorly located vitreous opacities.

Under an operating microscope, a cataract incision is made, followed by a large iridectomy and removal of the lens. The hyaloid face is incised. The formed vitreous is extracted with the suction-cutter or by incising the vitreous with scissors after engaging it with a cellulose sponge. As much vitreous as possible is removed. The limbal wound is closed with sutures and the anterior segment filled with air.

2. Posterior Vitrectomy

This procedure requires the special instrumentation mentioned. A small sclerotomy is made at the limbus or pars plana allowing entry of the suction-cutter tip. The fluid (Ringer's) infuses the vitreous cavity keeping the pressure at equilibrium and is withdrawn with the vitreous opacities through the suction-cutter tip. In conjunction with microscopic control, fiberoptic illuminators are placed into the eye allowing exact visualization and control (Figure 2). After tedious and delicate suction-cutting removal of the opacities, attempting to avoid critical ocular structures such as the retina and lens (if in place), the instruments are withdrawn and the small sclerotomy sites are sutured water tight.

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VITREOUS HEMORRHAGE

VITREOUS STRANDS
AND CONTRACTURE

LENS REMNANTS

INTRAOCULAR FOREIGN
BODIES

AMYLOIDOSIS

Table 1. Indications.

Complications

Most complications arise from the original ocular problems which are aggravated by the surgery. They include: hemorrhage (hyphema and vitreous), corneal edema, uveitis, glaucoma, post operative retinal detachment, phthisis, and infection. (Table 2)

Study

This series includes thirty-seven consecutive vitrectomies performed on thirty-three eyes of

thirty-one patients over a two-year period (see Table 3).

Results of Study

The results are summarized in Table 3. Seventeen cases were visually improved and fourteen were not.

The complications are reported in Table 2. While the complication rate, at first glance, might seem high, one must remember that these are all severely diseased eyes which heretofore

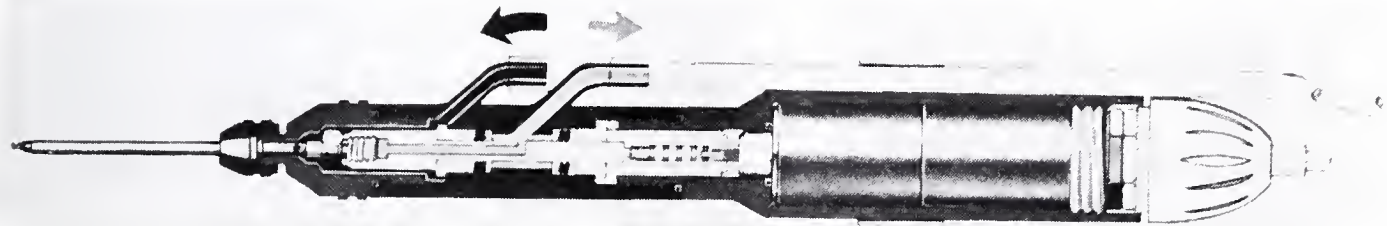


Figure 1.* Roto-Extractor of Douvas — Infusion-cutting-suction instrument with fine tip.
*Donated by the Rebsamen Fund.

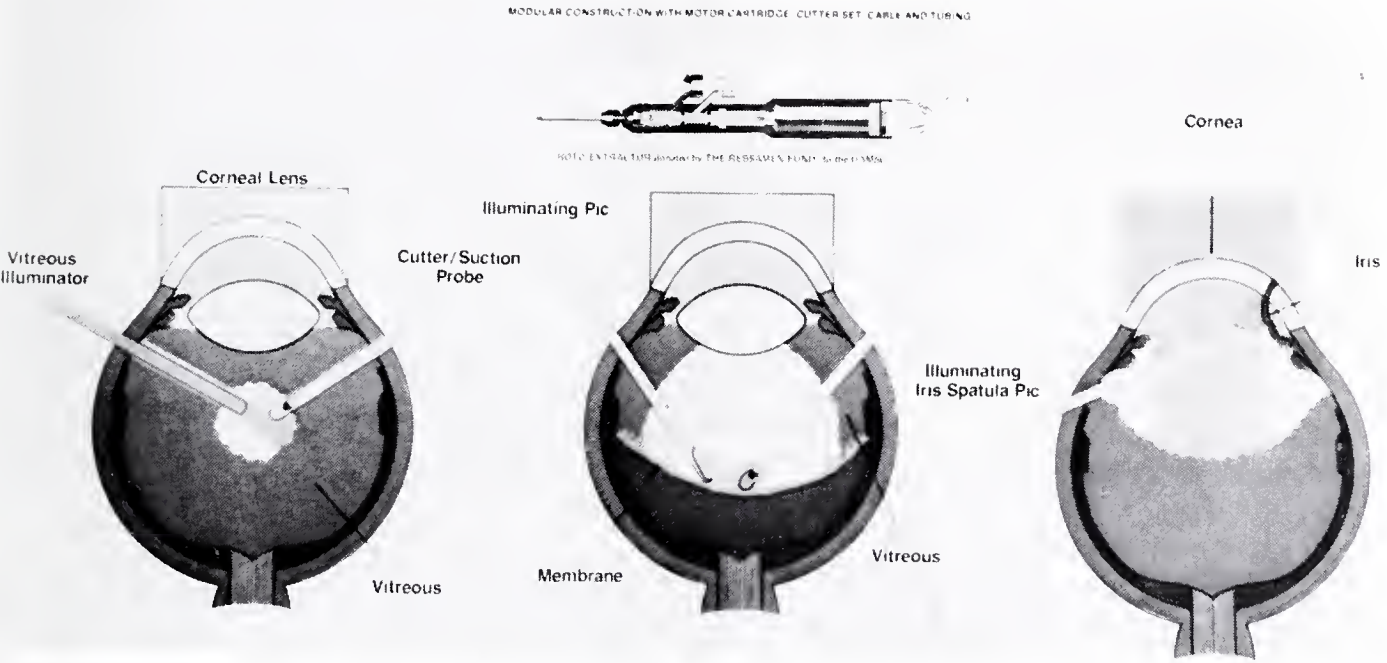


Figure 2. Cross section showing three different vitrectomy techniques.

1. HEMORRHAGE	4. GLAUCOMA—2
HYPHEMA—3	5. POST OPERATIVE
VITREOUS—2	RETINAL DETACHMENT—1
2. CORNEAL EDEMA—3	6. PHTHISIS—3
3. UVEITIS—2	7. INFECTION—0

Table 2. Complications.

DIAGNOSIS	Pre Op Vision	No. Cases (Eyes)	Improved			Unimproved	
			Marked 20/70+	Moderate 20/70 to 20/400	Mild H.M.- C.F.	Unchanged	Worse
Vitreous Hemorrhage†	L.P.-H.M.	13*	3	4	4	0*	2
Retinal Detachment	L.P.-H.M.	14	1	1	3	6	3
Injury and/or Foreign Body	L.P.-H.M.	4			1	1	2
Lens Remnants	20/400	2	2				
TOTALS		33	6	5	8	7	7

L.P.=Light Perception H.M.=Hand Motion C.F.=Count Fingers †=Diabetic & Unknown *4 Eyes had 2 Vitrectomies

Table 3. Summary of results.

had no hope of improvement. Most were in one-eyed, permanently blind people. Most of the complications, however, were not of serious nature. Eyes considered "worse" were continually painful, inflamed or phthisical. Three eyes ended in phthisis bulbi, and all three had a post operative hyphema (two were inoperable retinal detachments and one was a severe anterior segment trauma). Previously reported complications of rubeosis iridis with secondary glaucoma were not significant in our series.

Comments

The direct surgical approach to vitreous opacification has opened a new and exciting avenue toward the restoration of sight in previously blind individuals. While the surgical procedure is lengthy, technically demanding, high in complications and expensive, it has proven value in selected cases. Further refinements in instrumentation are forthcoming and hopefully the technical complications might be reduced or even eliminated.

Since most of these cases form cataracts, either from the disease or surgical procedure, and the vitreous clears better in an aphakic eye, our trend has been to divide the surgery. The first operation involves removal of the lens and an anterior vitrectomy. If in several months, the vitreous has not cleared sufficiently, we proceed with a

posterior vitrectomy as described. This, we think, reduces the complications of extracting the lens with a suction-cutter instrument and also allows the ocular fluids to circulate through the vitreous. Occasionally, the vitreous opacification will sufficiently clear after the first procedure.

Summary

Thirty-seven ocular vitrectomies were performed on thirty-three eyes over a two-year period. Partial or complete restoration of sight in eyes, previously without hope, was obtained in 58% (nineteen eyes). Complications, while significant, were primarily related to aggravation of existing ocular disease.

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New Concepts in Staphylococcal Endocarditis

Paul J. Baxley, M.D.,* and John E. Douglas, M.D., F.A.C.C.**

Staphylococcal endocarditis is a most serious infection in which early diagnosis and proper management are mandatory for patient survival. The following is a case report followed by a review of the literature emphasizing new concepts in Staphylococcal bacteremia and endocarditis.

The patient, a 62-year-old white male alcoholic, with a recent history of heavy drinking, was admitted to the Little Rock Veterans Administration Hospital with fever, mental confusion and agitation. Admission physical examination revealed a blood pressure of 118/80, pulse of 100, respiration of 16 and temperature of 105° F orally. The patient was disoriented and tremulous. A grade ii/vi systolic ejection murmur was heard at the left sternal border. Hepatomegaly, multiple ecchymoses, and a possible area of cellulitis on the anterior aspect of the left tibia were also present. His skull and chest x-rays were normal. His hematocrit was 29% with a white blood count of 7,500, 4% bands, 78% neutrophils, and 16% lymphocytes. Serum electrolytes revealed a sodium of 133 meq/L., potassium of 2.4 meq/L., chloride of 86 meq/L., and CO₂ of 28 meq/L. Urine analysis was normal. Lumbar puncture was performed and was normal. Blood and urine cultures were obtained.

HOSPITAL COURSE:

The patient was thought to be in delirium tremens and hydration and sedation were instituted. On the second hospital day, six blood cultures were reported positive for *Staphylococcus aureus*. Intravenous methicillin therapy at four grams per 24 hours was started. The patient improved and became fully alert by the fourth hospital day. He maintained that status until the eighth hospital day when a right lower lung infiltrate developed and progressed to involve the entire right lung, left upper, and left middle lobes (Figure 1). Sputum cultures grew *Serratia* and, despite the addition of appropriate antibiotics, polymixin B and rifampin, the patient progressively deteriorated requiring intubation

and mechanical respirations. On the twentieth hospital day, 150 cc. of pus, which subsequently grew *Staphylococcus aureus*, was drained from a fluctuant area on the left lower leg. On the twenty-fourth hospital day, a murmur of aortic insufficiency was discovered. Echocardiogram revealed only fluttering of the anterior leaflet of the mitral valve consistent with aortic regurgitation (Figure 2). On the twenty-eighth hospital day, the patient demonstrated increasing difficulty maintaining his peripheral arterial oxygen saturation and shortly thereafter expired.

Autopsy was performed revealing widespread involvement of both lungs with pneumonia. Pathologic examination of the heart revealed vegetations on the posterior cusp of the aortic valve which on microscopic examination demonstrated gram positive cocci (Figure 3).

In summary, a debilitated patient developed Staphylococcal bacteremia and subsequent endocarditis probably seeding from a skin infection on the lower extremity. Although this patient was managed appropriately for his Staphylococcal bacteremia, he subsequently developed endocarditis and ultimately died of another equally serious infection, *Serratia pneumonia*.

DISCUSSION:

Epidemiology — Bacterial endocarditis is not a common disease. The estimated overall incidence of infective endocarditis in the United States is two cases per year per 100,000 population, meaning the average general practitioner sees one case every five years. Recent studies indicate the actual percentage of endocarditis caused by Staphylococcal species is decreasing.¹ Despite the decreasing frequency of this entity, it is useful to review some of the predisposing conditions associated with Staphylococcal endocarditis.

Staphylococcal endocarditis is classically considered to be an acute form of endocarditis caused by the organism *Staphylococcus aureus* that can attack normal valves, as well as valves previously damaged or deformed by rheumatic, syphilitic, or congenital heart disease. The spectrum of Staphylococcal endocarditis has broadened with the advent of open heart surgery, prosthetic cardiac valves, transvenous pacemakers, and pulmo-

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nary artery pressure lines where Staphylococcal epidermis is frequently responsible for endocarditis.² The presence of these foreign bodies complicates therapy, though occasionally, endocarditis under such circumstances has been managed medically without surgical removal of the prosthetic valve or pacemaker.³

Recently, attention has been focused on the prolapsing mitral valve syndrome. This syndrome is characterized by a non-ejection systolic click and/or a late systolic murmur. Lachman, et al,⁴ reported ten cases of endocarditis in this syndrome, six of which were due to Staphylococcal epidermis and two to Staphylococcal aureus. Others have confirmed this association and emphasize the importance of SBE prophylaxis, particularly in those patients with late systolic murmurs.⁵

Staphylococcal endocarditis in drug addicts represents a more classical form of acute endocarditis involving "normal heart valves." It is interesting to note that in these patients the right side of the heart is involved more often

than the left. Reasons given for this predilection for right-sided involvement are that the right heart is exposed to repeated insults from the injection of drugs and associated adulterants, and the large intravenous inoculum of organisms.

It would appear that in most situations, Staphylococcal aureus endocarditis and most certainly Staphylococcal epidermis endocarditis require a valve that is previously damaged or altered in some way. In Hamburger's classic article in 1957⁶ summarizing fifteen years' experience with Staphylococcal bacteremia, the vast majority of patients who developed endocarditis had some form of underlying valve disease.

DIAGNOSES:

In patients with fever and a heart murmur, the diagnoses of endocarditis must be considered. Confirming the diagnoses rests on obtaining a positive blood culture. Bacteremia in this disease is relatively constant and most authorities recommend four blood cultures separately drawn and spaced over a time interval, such as 24 hours.

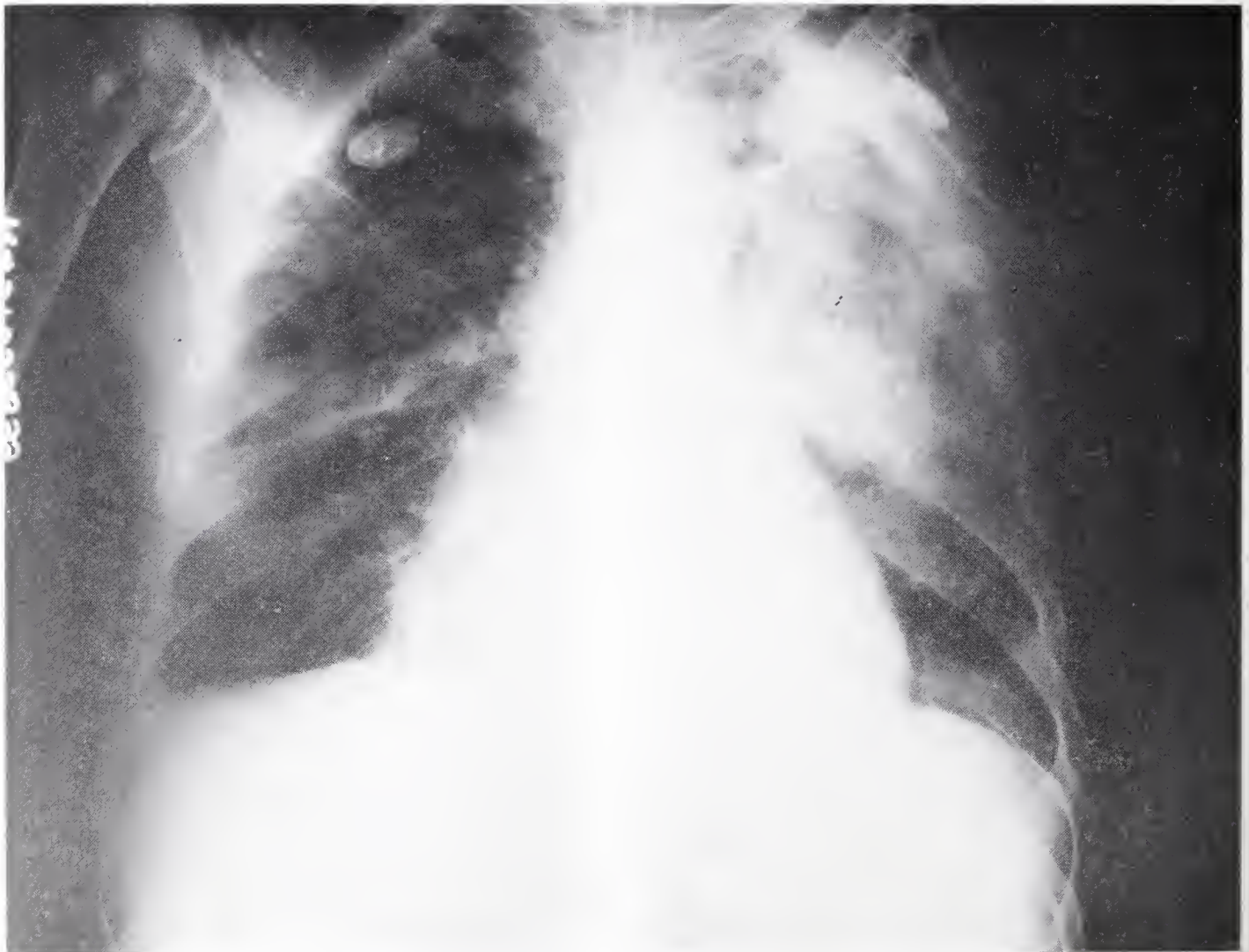


Figure 1: Chest x-ray on 15th hospital day. Note bilateral pulmonic infiltrates.

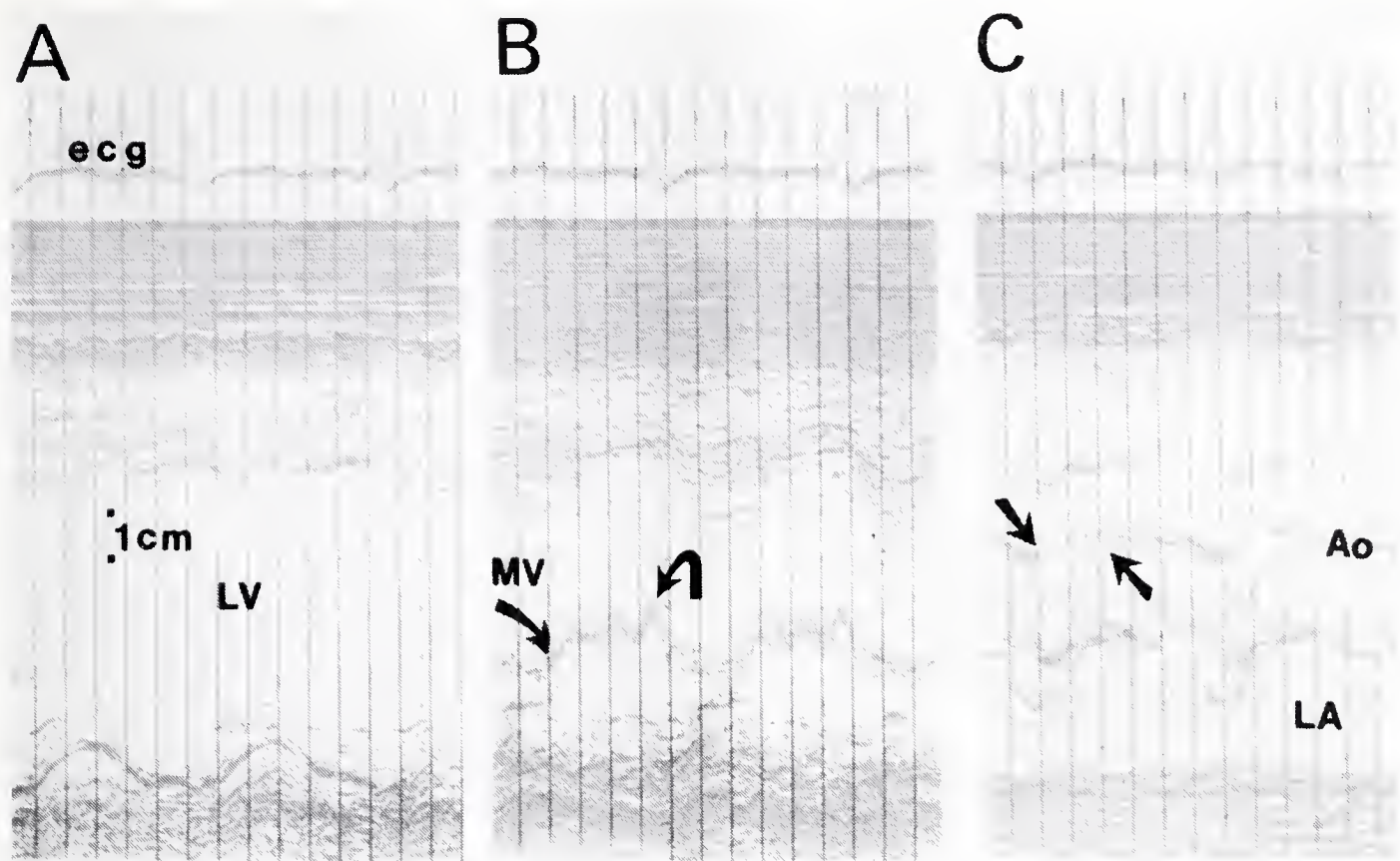


Figure 2: Echocardiogram on 24th hospital day. A. Echocardiogram of left ventricular (L.V.) chamber. Diastolic diameter of the L.V. is approximately 4.5 cm. B. Echo scan at level of mitral valve. The interval between the 2 curved arrows represents diastole. Note fine vibratory "chatter" of the anterior mitral leaflet consistent with the turbulence from aortic insufficiency. C. Scan through the aorta (Ao) and left atrium (L.A.) the arrows denote aortic valve opening and closure.

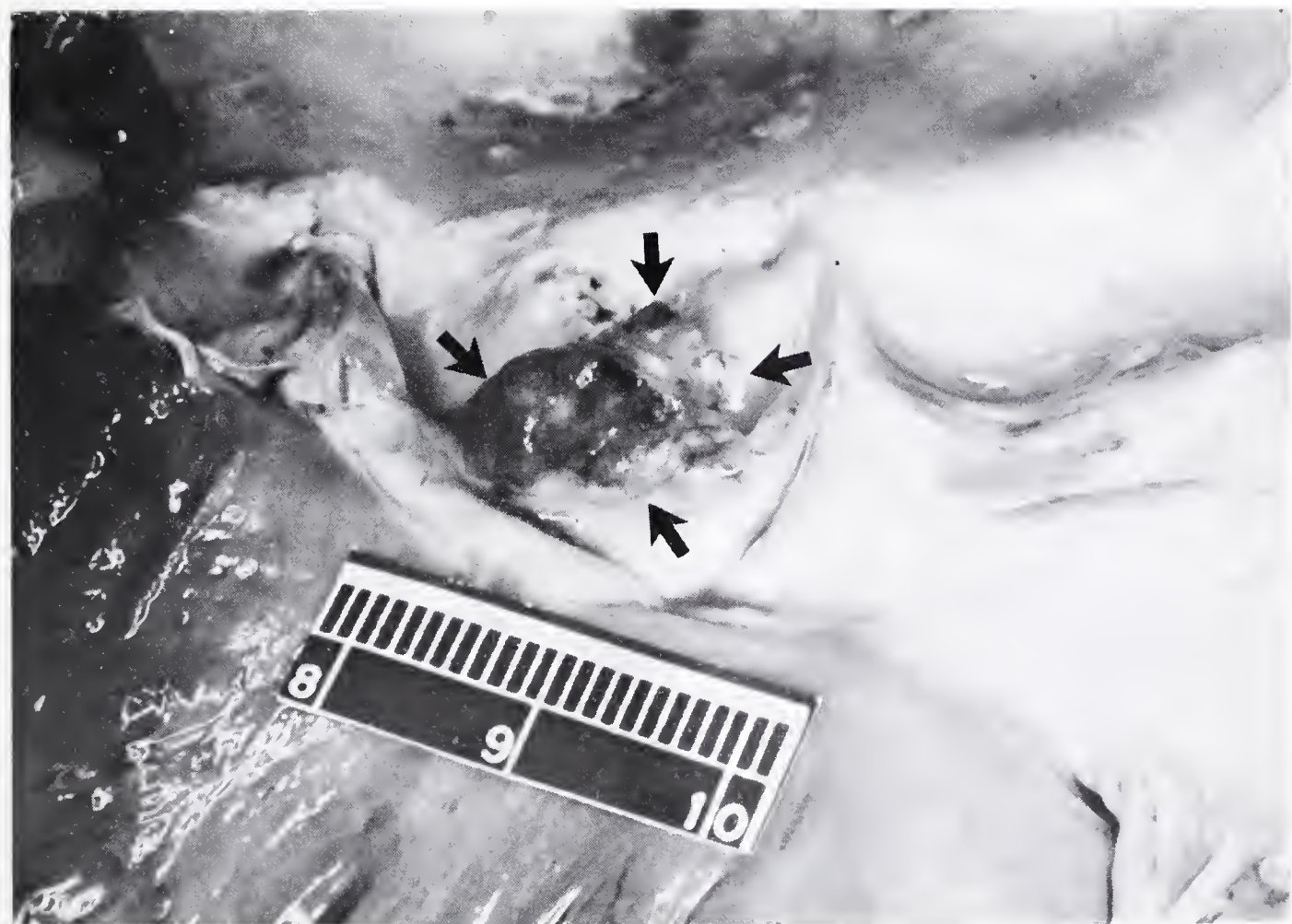


Figure 3: Vegetations on aortic cusp.

THERAPY:

The treatment of *Staphylococcus aureus* endocarditis is primarily medical management with appropriate antibiotics. In some instances, surgical intervention with valve replacement may be necessary. The logical choice of antibiotic would appear to be a semi-synthetic penicillin, such as methicillin, which has been shown to be highly effective in the therapy of *Staphylococcus* endocarditis.⁷ In patients who respond poorly to methicillin as reflected by persistence of positive blood cultures, the addition of an aminoglycoside, such as gentamycin, has been shown to improve the chances for cure, probably through the synergistic bactericidal action of these two drugs.⁸ In the event that a semi-synthetic penicillin cannot be used, vancomycin would be the second drug of choice. However, a failure with vancomycin has been reported,⁹ and these investigators pointed out that the organism showed in vitro sensitivity to disc diffusion methods, but disparity with tube dilution methods. Other singular antibiotic regimens have been used with success, notably cephalosporins* and clindamycin.** These drugs, which

*Keflin
**Cleocin

can be given intramuscularly, have an advantage in the treatment of drug addicts who have already sacrificed their peripheral veins. However, treatment failures with clindamycin are reported and some investigators feel it is a poor drug for the therapy of endocarditis.¹⁰

In conclusion, methicillin appears to be the best drug for *Staphylococcus aureus* endocarditis. *Staphylococcus* resistance to methicillin is uncommon, but disc sensitivities should be done in all cases.

Prolonged antibiotic therapy (four to six weeks) is recommended for all cases of *Staphylococcus* bacteremia to cover the possibility of occult valvular infection. Some workers have studied *Staphylococcus* bacteremia to find predictive factors for those patients who actually develop endocarditis in order to shorten hospitalization. Nolan, et al,¹¹ examined this problem grouping patients on the presence or absence of a source of primary infection. They were not able to make recommendations for shorter treatment schedules. Recently, another group¹² was able to identify a patient population with *Staphylococcus* bacteremia in whom a shorter treatment program of fourteen days could be recommended.

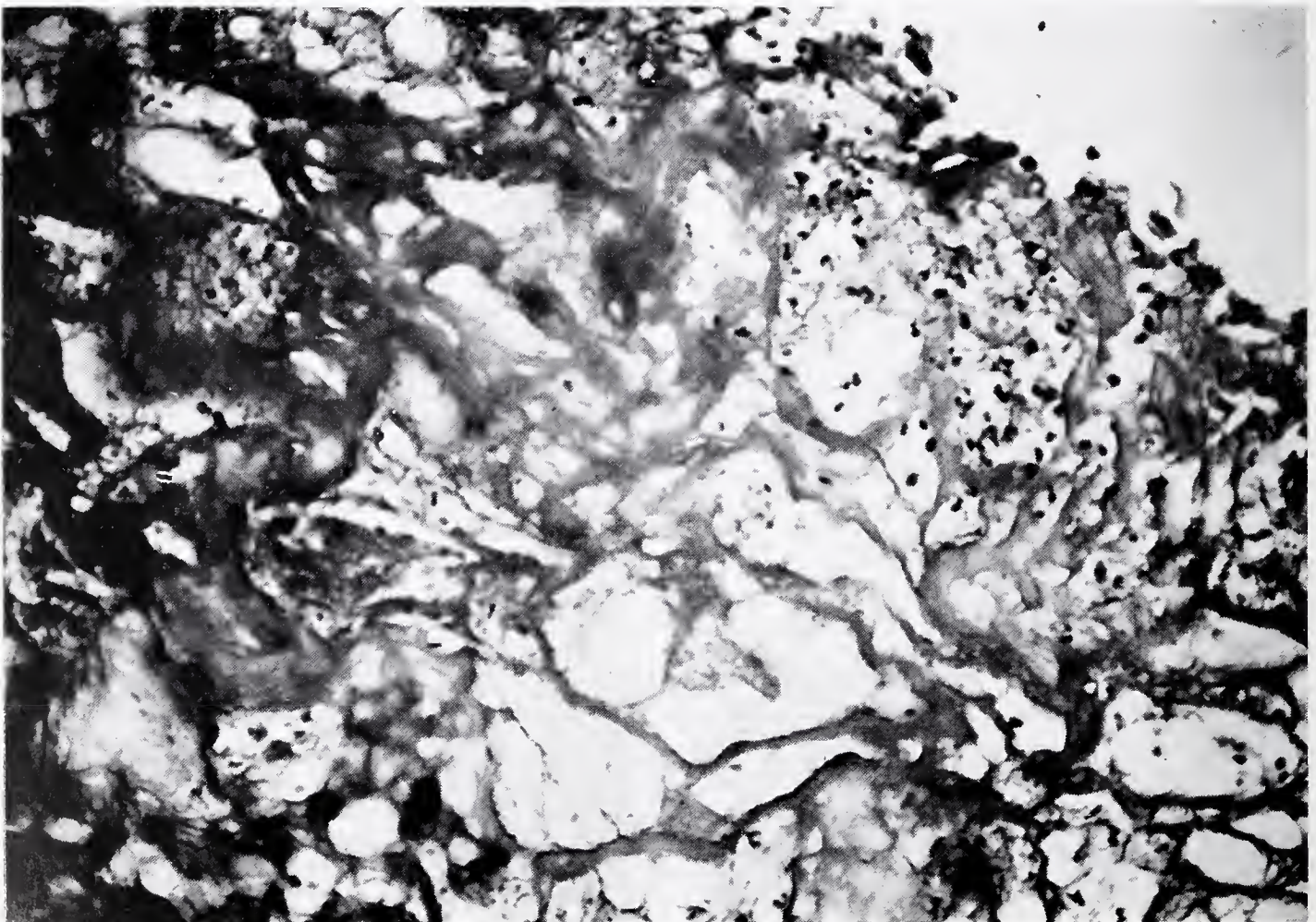


Figure 4: Gram positive cocci in aortic valve vegetation.

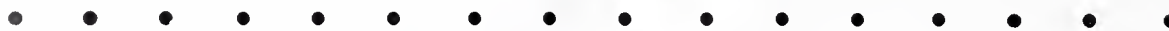
Criteria were gross normal host defense, no evidence of valvular heart disease and, most importantly, an easily removable foci of infection such as catheter, shunt, or abscess.

In summary, Staphylococcal endocarditis encompasses a broader clinical spectrum than once thought. Infection can be with either species of *Staphylococcus* and present as either a subacute illness or acute rapidly progressive disorder. Early diagnoses and appropriate antibiotic therapy is the keystone for managing these patients.

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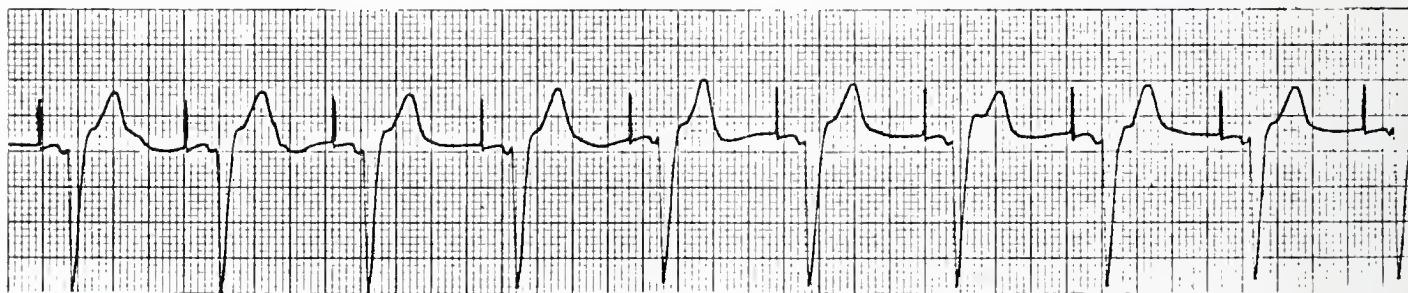


The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 461)

Patient with a temporary pacemaker placed in the right ventricle after an episode of syncope associated with a marked bradycardia. The patient's rhythm changes suddenly to the tracing below. (V₁ monitor strip.)

1. What has happened?
2. What action should be taken?



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Office Orthopaedics

Exercises for the Aging, the Lame and the Halt

H. Austin Grimes, M.D.*

Many articles have been published recently about exercise programs for the older person (over 40), but there are not many who can tolerate jogging, or singles tennis and few have time to go to elaborate spas or a gymnasium for a proper exercise program. This article proposes a program which can be done with appropriate supervision by a family physician and the equipment is cheap and readily available. The program can be done indoors every day of the year.

A regular exercise program for the 40+ individual has long been thought to be beneficial. Recent studies have shown convincingly that bone mineral can be increased in the older person with regular exercise and a maximum oxygen consumption and maximum heart rate can be maintained into old age as well. Therefore, it is not too late to begin an exercise program simply because you are approaching or past the half century mark.

The incentives for the patient to institute an exercise program should be provided by the family physician after evaluation of limitations, if any. Many attritional disorders that affect the over 40 patient discourage the patient from any activity that would aggravate his condition. Therefore, we propose a flexible program which allows the patient to choose the exercises he can perform routinely without worsening any existing disorder.

The program begins with stretching arms, legs, neck and back in all directions and deep breathing for about five or six breaths, being careful not to hyperventilate. Then skipping the rope

without the rope, a chinning bar, five pound weights for exercising the arm and a slant board are utilized. The slant board helps to do abdominal sit-ups without having someone sit on one's feet. I suggest a graduated program in order to build up endurance over a period of time, roughly about ten to twelve weeks, until one reaches a maintenance level which we will mention as we discuss each exercise.

When skipping the rope without the rope one will normally skip about two skips a second, however, this may vary from individual to individual. At two skips a second in two minutes one has skipped 240 times, at three minutes 360 times, in four minutes 480, at five minutes 600 times, etc. Eventually one will want to work up to five minutes twice a day over a period of six weeks. By then one should commence working toward ten minutes once a day five days a week and keep in fairly good shape. This type of skipping the rope should be done with the knees partially flexed, landing on the forefeet, skipping about an inch off the floor and circumducting the arms with the arms abducted to 90 degrees, if there are not major shoulder problems. This can be done in patients with lumbar degenerative disc disease, residual old knee injuries, degenerative joint disease from whatever cause, post-operative herniated disc removals and foot pain associated with other activities such as joggers who are no longer able to jog. If there are shoulder problems the elbows should be kept somewhat to the side and flexed with tightening of the muscles in the shoulders and upper torso. This can be done in the confines of the bathroom, barefoot on a rug or bathmat prior to the

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bath. Preferably this should be done in front of the mirror so one can see the young body dancing up and down inside that tube of fat with the old face.

For the chinning exercises one should begin the exercises at four or five times a day with the palms facing one if there are shoulder problems, if not, facing away. One should be able to build up to about eight to ten chin-ups a day along with the five to ten minutes of skipping the rope, or I should say the "no rope." It has been estimated that skipping the rope for ten minutes is equivalent to 30 minutes of jogging.

Sit-ups on the slant board obviate the need for someone to sit on one's feet, as the knees are flexed over the end of the board. Again, a gradual program should be instituted and built up to 20, 30 or 40 that can be repeated daily depending on one's age and activity level.

Five pound weights in the hands increase the work done by the muscles and give fairly brief isotonic actions that are well tolerated by most individuals. Flex and extend the arms with the weights 20 to 40 times over a brief period of

time. Care should be taken not to do this too rapidly as the muscles fatigue more quickly and are likely to cramp.

These activities require a reasonable effort to give the best development and if the program is followed faithfully visible improvement will appear in weeks. There will be times when this will be painful and not appropriate and it should not be done at those times. It should be resumed as soon as possible and every effort should be made to continue this program throughout the rest of one's lifetime. We may need to reduce the number of skips with advancing age, but close monitoring of cardiac function, as should be done with any exercise program, will help determine reasonable limits. The extent of this monitoring should be determined by the physician.

The total cost of the equipment is about \$30.00 to \$40.00, depending on where one buys the goods. The return in better conditioning and vigor is inestimable. This may not prolong your life as some advocates of exercise claim, but you will go down swinging.





1976 Arkansas Death Statistics

Dorene Powell*

THE SOURCE OF ARKANSAS DEATH STATISTICS

Mortality statistics for Arkansas are arrived at through the classification and coding of death certificates for all deaths which occur in Arkansas. The medical certification section of these certificates is the primary source of information on which these statistics are based. Using guidelines set forth by the International Classification of Diseases, Adapted (ICDA), a single underlying cause of death is selected and numerically coded. Coding and other pertinent information (excluding any information which gives identification of individuals) is recorded by computer, and annual lists are produced which show exact causes of death by age group, sex, and race, listed for each county and for the state.

LEADING CAUSES OF DEATH IN ARKANSAS

The ten leading causes of death in Arkansas in 1976, as compared to the ten leading causes of death in the United States for the same year, are as follows.

Cause	Arkansas Rank	United States Rank
Heart Diseases	1	1
Cancer	2	2
Cerebrovascular Disease	3	3
All Accidents	4	4
Senility, Symptoms, Ill-Defined Diseases	5	6
Pneumonia	6	5
Diabetes Mellitus	7	7
Arteriosclerosis	8	9
Suicide	9	10
Bronchitis, Emphysema, Asthma	10	—
Cirrhosis of Liver	—	8
Heart Diseases, Cancer, Cerebrovascular Dis-		

eases, and Accidents have kept their same positions on this ranking since 1950.

Table I shows the major ICDA Classifications, with a breakdown by age groups.

INFANT DEATHS

The category of Infant Deaths (under 1 year of age) shows "Perinatal Mortality" to be the leading cause of infant deaths. Specifically, the leading causes of death within this general category were prematurity (40 deaths), Hyaline membrane disease (37), Hemorrhage of newborn (31), Respiratory distress syndrome (29), and multiple births (22). It should be noted at this point that, in the ICDA Classification system, the category of "Sudden Infant Death Syndrome" is not included in the "Perinatal Mortality" category, but is in the category of "Ill-Defined Conditions." Of the 75 infant deaths in this "Ill-Defined" category, 65 were attributed to SIDS. Congenital Anomalies were the second leading cause of infant deaths, with anomalies of the heart (29) being the most common. The leading cause of accidental deaths for infants was suffocation, primarily from the inhalation or ingestion of an object other than food, or accidental mechanical suffocation (6).

The infant mortality rate for Arkansas in 1976 was 15.2 per thousand, compared to a nationwide rate of 15.1.*

DEATHS FROM EXTERNAL CAUSES: ACCIDENTS, POISONINGS, VIOLENCE

In the classification of deaths due to external causes such as accidents, homicides, and suicides, these statistics are dependent upon statements made by the doctor or coroner in the medical certification section of the death certificate. If sufficient information is not included on the cer-

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*Provisional figure, National Center for Health Statistics, Vital Statistics Report, Annual Summary for the United States, Vol. 25, No. 13, December 1977.

TABLE I
ARKANSAS 1976 — CAUSES OF DEATH, BY AGE GROUP

CODE — CAUSE	TOTAL													Unk.
000-136 INFECTIVE AND PARASITIC DISEASES	163	23	5	4	2	5	7	9	26	33	29	20	---	
010-019 Tuberculosis	42	---	---	---	---	---	3	5	6	11	11	6	---	
090-099 Syphilis & Other Venereal Diseases	5	---	---	---	---	---	---	---	1	2	2	---	---	
140-239 NEOPLASMS	3,683	1	8	10	26	46	111	364	794	1195	844	283	1	
140-209 Malignant Neoplasms	3,632	1	7	10	24	45	107	355	786	1180	833	283	1	
240-279 ENDOCRINE, NUTRITIONAL & METABOLIC DISEASES	434	2	2	3	3	8	11	25	70	132	122	55	1	
250 Diabetes Mellitus	367	---	---	---	1	5	10	21	63	114	104	48	1	
280-289 DISEASES OF BLOOD & BLOOD-FORMING ORGANS	47	2	2	1	1	2	---	2	7	7	12	8	---	
290-315 MENTAL DISORDERS	51	---	---	1	---	3	4	10	9	6	11	6	1	
320-389 DISEASES OF NERVOUS SYSTEM & SENSE ORGANS	118	10	4	7	3	5	8	11	22	25	19	4	---	
320 Meningitis	17	6	1	1	1	---	---	1	2	3	2	---	---	
340 Multiple Sclerosis	10	---	---	---	---	1	1	3	2	2	---	1	---	
390-458 DISEASES OF CIRCULATORY SYSTEM	10,669	6	2	5	18	33	149	519	1336	2739	3187	2371	4	
390-429 Heart Diseases	7,469	3	2	3	11	21	106	416	1062	2001	2340	1500	4	
430-438 Cerebrovascular Diseases	2,145	2	---	---	2	10	25	77	202	573	891	663	---	
440 Arteriosclerosis	306	---	---	---	---	---	3	3	11	49	110	130	---	
460-519 DISEASES OF THE RESPIRATORY SYSTEM	1,121	29	9	4	9	11	17	44	142	280	317	229	---	
470-474 Influenza	67	---	---	---	1	1	---	2	3	11	21	28	---	
480-486 Pneumonia	192	21	6	3	8	6	7	19	40	76	159	117	---	
490-493 Bronchitis, Emphysema, Asthma	226	1	1	---	---	2	3	9	37	95	61	17	---	
520-577 DISEASES OF DIGESTIVE SYSTEM	523	6	1	2	7	7	28	55	109	132	112	64	---	
571 Cirrhosis of Liver	165	---	---	---	1	3	17	35	47	41	20	1	---	
580-629 DISEASES OF GENITOURINARY SYSTEM	290	---	---	3	1	9	3	14	29	80	83	68	---	
580-584 Nephritis and Nephrosis	117	---	---	2	1	4	1	9	16	38	29	17	---	
630-678 COMPLICATIONS OF PREGNANCY, CHILDBIRTH & PUERPERIUM	8	---	---	---	2	5	1	---	---	---	---	---	---	
680-709 DISEASES OF SKIN & SUBCUTANEOUS TISSUE	30	---	---	---	1	1	1	1	1	8	11	6	---	
710-738 DISEASES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	70	---	---	---	1	2	5	7	12	18	18	7	---	
740-759 CONGENITAL ANOMALIES	121	76	11	9	6	2	3	2	6	5	1	---	---	
760-779 CERTAIN CAUSES OF PERINATAL MORTALITY	219	219	---	---	---	---	---	---	---	---	---	---	---	
780-796 SYMPTOMS AND ILL-DEFINED CONDITIONS	904	79	2	1	10	4	14	53	135	216	205	185	---	
790-796 Senility & Ill-Defined Conditions	767	75	2	1	8	3	10	48	121	181	161	151	---	
800-999 ACCIDENTS, POISONINGS, VIOLENCE	1,545	16	51	105	330	232	143	168	161	150	139	50	---	
800-949 All Other Accidents	597	13	26	54	92	52	47	49	51	70	100	43	---	
810-823 Motor Vehicle Accidents	474	1	21	48	151	77	25	43	44	41	19	4	---	
950-959 Suicide & Intentional Self Injury	241	---	---	1	38	45	32	41	41	24	14	2	---	
960-969 Homicide (Including Legal Intervention)	192	1	3	2	41	51	34	24	21	11	4	---	---	
980-989 Injury Undetermined Whether Accident/Intentional	41	1	1	---	8	7	5	8	4	4	2	1	---	

BY: Division of Health Statistics, Arkansas Department of Health.

TABLE II
ARKANSAS 1976 — DEATHS DUE TO ACCIDENTS, POISONINGS, VIOLENCE

ICDA	EXTERNAL CAUSE	TOTAL	-1	1-4	5-11	15-21	25-34	35-44	45-54	55-64	65-74	75-84	85+
800-807	Railway Accidents	4	---	---	1	---	---	1	---	1	---	1	---
810-819	Motor Vehicle Traffic Accidents	466	1	19	45	148	77	25	43	41	41	19	4
820-823	Motor Vehicle Nontraffic Accidents	8	---	2	3	3	---	---	---	---	---	---	---
825-827	Other Road Vehicle Accidents	1	---	---	---	---	---	---	---	1	---	---	---
830-838	Water Transport Accidents	18	---	---	1	4	2	5	2	3	1	---	---
840-845	Air and Space Transport Accidents	11	---	---	---	4	2	5	---	---	---	---	---
850-859	Accidental Poisoning by Drugs and Medicaments	8	---	2	---	---	1	2	1	1	1	---	---
860-869	Accidental Poisoning by Other Solid/Liquid Substance	6	---	---	---	---	---	1	1	1	2	1	---
870-877	Accidental Poisoning by Gases and Vapors	15	---	2	---	5	2	2	2	---	---	---	2
880-887	Accidental Falls	119	---	1	1	2	1	5	5	6	27	46	25
890-899	Accidents Caused by Fire and Flames	124	3	6	15	8	13	8	9	14	15	26	7
900-909	Accidents Due to Natural and Environmental Factors	24	---	1	2	2	3	1	2	1	6	3	---
910-929	Other Accidents	248	10	14	31	61	26	17	25	19	14	17	8
930-936	Surgical and Medical Complications and Misadventures	12	---	---	---	2	---	---	1	---	2	6	1
940-949	Late Effects of Accidental Injury	7	---	---	---	1	2	---	1	1	2	---	---
950-959	Suicide and Self-Inflicted Injury	211	---	---	1	38	45	32	44	41	24	14	2
960-969	Homicide/Injury Purposely Inflicted by Other Person	191	1	3	2	40	51	34	24	21	11	4	---
970-978	Legal Intervention	1	---	---	---	1	---	---	---	---	---	---	---
980-989	Injury Undetermined Accidentally/Purposely Inflicted	41	1	1	---	8	7	5	8	4	4	2	1
990-999	Injury Resulting from Operations of War	0	---	---	---	---	---	---	---	---	---	---	---
TOTALS		1,545	16	51	105	330	232	143	168	161	150	139	50

BY: Division of Health Statistics, Arkansas Department of Health.

tificate to classify these deaths, further information is sought from the medical certifier. Newspaper accounts of accidents have also proven helpful in the classification of many deaths involving accidents or other external causes.

Half of the deaths for age 1-34 are caused by accidents, the No. 1 cause of death for this age group. For ages 1-14, and again for age 35 and over, accidents *other* than motor vehicle accidents outnumber the total motor vehicle deaths. Table II shows the major categories of accidental deaths by age groups. The category of "Other Accidents" on Table II includes mostly deaths resulting from drowning (81), accidental suffocation or obstruction by ingestion of food, other substance or object, or mechanical suffocation (45), accidental shooting (34), being struck or crushed by an object (36), and electrocution (22).

The highest number of accidents occur to ages 15-24, who had one-third of the total fatal motor vehicle accidents. This age group also led in deaths due to drowning (36) and accidental shootings (11).

Table III compares the 1976 Arkansas accidental death rates to the United States figures. These rates show that while Arkansas had only 1/7 of the national death rate due to poisoning by solids and liquids, deaths in Arkansas due to fire and flames were twice the national rate.

HOMICIDES AND SUICIDES

Suicide was the 4th ranked cause of death for Arkansans aged 15-24. Out of the 241 suicides recorded in Arkansas, 182 were male; 185 used firearms. The second highest reported methods of suicide were by hanging or suffocation (17) and poisoning by ingestion (17). Other methods reported were motor vehicle exhaust gas or other gases (10), drowning (6), cutting or piercing (3), jumping from a high place (2), and unspecified (1).

Homicide was the third leading cause of death for ages 15-24, with 41 homicides in this age group. Almost half (90) the homicides were non-white males. Out of the total 192 homicides recorded, 150 were by firearms, with the second most common method being stabbing (25).

TABLE III
1976 ACCIDENTAL DEATH RATES ARKANSAS — UNITED STATES

CAUSE	Arkansas Death Total	Arkansas Death Rate (Per 100,000)	United States Death Rate (Per 100,000)*
All Accidents	1,071	50.8	46.6
Motor Vehicle Accidents	474	22.5	21.8
Falls	119	5.6	6.7
Drowning	81	3.8	3.4
Fires, Burns, Injuries in Conflagrations	124	5.9	2.9
Poisoning by Solids and Liquids	6	0.3	2.0
Suffocation — Ingested Object	33	1.6	1.4
Firearms	34	1.6	1.1
Poisoning by Gases and Vapors	15	0.7	0.7
All Other Accidents	185	8.8	6.8

*Source for U. S. Rates: National Safety Council. Rates per 100,000 population.

BY: Division of Health Statistics, Arkansas Department of Health.

RESOLUTIONS



Dr. William E. Harville

WHEREAS, Dr. William E. Harville of Little Rock, Arkansas, recently deceased, provided for many years the Bradley County Medical Society and the Bradley County Memorial Hospital the highest degree of professional service,

THEREFORE, BE IT RESOLVED, the members of the Bradley County Medical Society wish to recognize and express their appreciation for his life of service within and without the profession and wish to express our deepest sympathy and extend most sincere condolences to the family of Dr. Harville.

Bradley County Medical Society

William Edward Harville, M.D.

WHEREAS, the members of the Pulaski County Medical Society are deeply grieved by the recent death of our colleague, William Edward Harville, M.D., and;

WHEREAS, Dr. Harville was held in high esteem by his fellow physicians for his devotion to his profession and specialty; and

WHEREAS, his service to the Society as a member of the Executive Committee for a number of years is recognized with sincere appreciation;

BE IT THEREFORE RESOLVED: THAT, this resolution be made a part of the permanent records of this Society and;

THAT, Dr. Harville's family be sent a copy of this resolution as an expression of our sympathy, and;

THAT, a copy be sent to the Journal of the Arkansas Medical Society for publication.

Pulaski County Medical Society

Lawrence Lee Thompson, M.D.

WHEREAS, the recent death of Lawrence Lee Thompson, M.D., an esteemed member of this Society is recognized with sincere sorrow; and

WHEREAS, Dr. Thompson had been a member of this Society for twenty-six years, and

WHEREAS, the devotion of Dr. Thompson to his patients and to his profession is recognized with appreciation:

BE IT THEREFORE RESOLVED: THAT, we cause this resolution to be placed in the permanent archives of the Society; and

THAT, a copy of this resolution be sent to Dr. Thompson's family as an expression of our deepest sympathy, and

THAT, a copy be sent to the Journal of the Arkansas Medical Society for publication.

Pulaski County Medical Society



ANSWER—Electrocardiogram of the Month

1. The pacemaker wire has flipped back into the right atrium and is pacing the atrium with 1:1 conduction. The QRS duration is 0.12 with a LBBB configuration.
2. A bradyarrhythmia documented at or post a syncopal episode suggests sick sinus syndrome (SSS). However, syncope is rarely seen with sinus bradycardia alone. It is seen in the SSS with sinus arrests and when the patient has bradycardias and tachycardias. Disease of the sinus node is frequently associated with disease of the AV node or bundle branches. Syncope may be caused by the associated AV nodal or bundle branch disease. Therefore, even though the patient has an adequate mechanism at this time, the pacing wire should be replaced in the right ventricle. Patients with SSS without evidence of AV nodal disease or bundle branch block can be paced from the atrium, but the position of the wire is usually unstable except when in the coronary sinus, and ventricular pacing is preferred. Coronary sinus leads have been developed as an alternative for permanent pacing of the atrium in sick sinus syndrome, however, prior to their placement, AV nodal and His conduction times should be obtained.

For Further Reading:

1. Narula, O. S.: Atrioventricular conduction defects in patients with sinus bradycardia, *Circulation* 44:1096-1110, 1971.
2. Rubenstein, J. J., Schulman, C. L., Yurchok, P. M.: Clinical spectrum of the sick sinus syndrome, *Circulation* 46:5-13, 1972.



EDITORIAL

The Lung — an Endocrine Organ

Alfred Kahn, Jr., M.D.

To the medical public and the lay public the lung is thought of as a respiratory organ of vital significance. The possibility of other functions is usually given very little consideration. In two successive issues of the *American Journal of Medicine* are articles on the lung as an endocrine organ.

Bonikos and Bensch (*American Journal of Medicine*, Vol. 63, page 765, November, 1977), have reviewed the endocrine cells of the bronchus and the bronchioles. The endocrine type cells appear to be a lining cell of the airways. With conventional hematoxylin and eosin stains, these endocrine cells appear clear. By electron microscopy, these cells can also be identified. These cells are often called K-cells; small granule cells, and neurosecretory cells. These cells are diffusely encountered throughout the bronchial and bronchiolar epithelium either singly or in small clumps. The K-cells have dense core granules and this has made investigators feel that these cells have a secretory function. It is felt that these K-cells are part of the so-called APUD endocrine system; the system is said to be composed of a group of diverse polypeptide producing endocrine cells. All of these cells contain fluorogenic amines. The lung K-cells like some other APUD cells have argyrophilia which implies the presence of phenols and polyamines. The cells also have metachromasia which implies chemicals with acid binding sites. The K-cells stain intensely with phosphotungstic acid; this is interpreted as due to glycoprotein; some hormones fall into this class of chemicals. Bonikos and Bensch use another type of evidence to suggest that K-cells have an endocrine function — namely, tumors of K-cells often have "ectopic" endocrine function. Oat cell tumors of the lung may manufacture one or more ectopic

hormones including calcitonin, parathormone, and diuretic hormone, ACTH, insulin prolactin, oxytocin, and melanocyte stimulation hormone. The K-cells have an abundant nearby nerve supply and the authors have speculated that the K-cells might be stimulated into some chemical release by neurogenic stimulation.

In the October, 1977, issue of the *American Journal of Medicine*, is a combined clinical and Basic Science Seminar (Vol. 63, page 595, October, 1977), moderated by H. O. Heinemann with Drs. J. W. Ryan and U. S. Ryan as lecturers. Dr. Heinemann introduced the discussion by stating that it is known for many years that the lung modifies vaso reactive substances brought to it by the blood; serotonin is taken into the endothelium of the pulmonary vessels and converted to five hydroxy indolacetic acid.

Drs. Ryan and Ryan state that the lungs have at least two chemical functions with regard to hormones and their precursors: inactivation, activation; they may permit the substance to pass unchanged. They report that lung tissue can synthesize chemicals as prostaglandins; some of the substances act at a distance from the lungs. Of particular interest is the fact that lung tissue is said by Ryan and Ryan to have remarkable selectivity with regards to chemicals that it processes; often an analogue of a substance processed by the lung is not chemically affected by the lung although it has the enzyme systems to act on the substance and its analogue — angiotensin I is processed but not II or III.

Drs. Ryan and Ryan have intensively studied two substances which are chemically affected by the lung: angiotensin I which is altered to angiotensin II, a very potent hypertensive; secondly, bradykinin which is a hypotensive. Studies by the authors indicated that both bradykinin and

angiotensin I are metabolized by one lung enzyme. They postulated that the enzymes were on the luminal surface of lung endothelium. They used mono layers of endothelials to test for substances with enzymatic activity and found them to be present—even when grown in culture. In the recent past, Ryan and Ryan state that they have “direct evidence on the subcellular location of an enzyme capable of degrading bradykinin and of converting angiotensin I to angiotensin II.” The enzyme reported acts as a dipeptidyl carboxypeptidase. Specific antibodies against the pure enzyme have been produced, and the

antibodies have been used to localize the enzyme. Using intact lung tissue the enzyme was found on the luminal side of almost all capillaries and small vessels, the Ryans report they suggest the importance is that the lung can raise or lower blood pressure by altering angiotensin I and bradykinin in the blood without cellular uptake; furthermore, the lungs are in a key position, with regard to the body's circulation.

These studies indicate that the lung is an endocrine-like organ as well as an organ of respiration.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The federal government has released a second version of the controversial health planning guidelines, saying the revised rules contain “enough flexibility to be fair, and are tough enough to be effective.”

When the original guidelines were published last fall in the *Federal Register*, the Department of Health, Education and Welfare received more than 55,000 mostly critical comments, the bulk from Texas, Iowa, and Montana stating the belief that the rules were unfair to small, rural hospitals.

The response took the agency by surprise and the guidelines were withdrawn to be revised in such form as to be more acceptable. The revised rules will be open to comment until March 6 at which time the final regulations will be published.

HEW Secretary Joseph Califano emphasized that the guidelines are to serve as national standards for local Health System Agencies and state health planning bodies, which must make the final decisions.

The Secretary said HEW's ability to enforce the guidelines is limited to two areas. One, if

a local hospital proceeded with capital expenditures in violation of a state adopted plan, HEW could withhold funds that are provided for reimbursement of depreciation costs. Two, HEW does have the power to “decertify” local HSAs that completely disregard the guidelines. However, Califano stressed that planning authority rests in local hands.

The revised guidelines propose these major standards:

- **A maximum of four hospital beds per 1,000 people.
- **An average annual occupancy rate of at least 80 percent for hospitals in a Health Service Area.
- **At least a 75 percent average occupancy rate and at least 1,500 births annually for hospitals that provide care for complicated obstetrical problems.
- **No more than four neonatal intensive and intermediate care beds per 1,000 live births.
- **A minimum of 20 beds for pediatric units in urban areas.
- **Average annual occupancy rate ranging from 65 percent to 75 percent for pediatric units, based on their size.

- **At least 200 open heart procedures annually in any institution in which open heart surgery is performed for adults, and at least 100 heart operations annually in any institution in which pediatric open heart surgery is performed.
- **At least 300 cardiac catheterizations annually in any adult catheterization unit, and at least 150 cardiac catheterization units annually in any pediatric catheterization unit.
- **A service area with a population of at least 150,000 people, or treatment of at least 300 cancer cases annually, for megavoltage radiation units.
- **At least 2,500 procedures per year for each computed tomography scanner.
- **Plans consistent with already established HEW standards and procedures for suppliers of end-stage renal disease services.

* * * *

Painting cigarette smoking as "slow-motion suicide" HEW Secretary Califano has launched a stepped-up government program against smoking.

Most of the effort will be to increase public awareness of the hazards of smoking, but Califano, an ex-smoker, has asked the U. S. Treasury Department to "examine a range of possible measures, including a general increase in the federal excise tax on cigarets and a graduated tax according to the tar-nicotine content of cigarets."

Califano also asked the Federal Trade Commission to "consider recommendations to strengthen warnings on cigaret packages and in advertisements and to empower the federal government to set maximum levels for tar, nicotine, and carbon monoxide in cigarets."

He also requested major providers of health, fire, life, and disability insurance to "consider offering special premium discounts and other advantages to nonsmokers, so that they will no longer have to bear so heavy a part of the enormous cost generated by smokers."

The Secretary announced that the Food and Drug Administration is revising the patient labeling of oral contraceptives, and adding a prominent warning against smoking. The warning will read: "Women who use birth control pills should not smoke." Subsequently, the FDA made such an announcement.

Califano also said he would ask the FDA "systematically to investigate the interaction of

smoking with other therapeutic drugs, so that users who smoke can be made aware of the special dangers they face."

The White House displayed a notable lack of enthusiasm for Secretary Califano's anti-smoking drive, according to a by-line story in the Baltimore *Morning Sun*.

"Aides to President Carter fear the campaign will be ineffective and that it will be interpreted as excessive government interference in Americans' private lives," the *Sun* reported.

"We're certainly worried about the danger smoking poses to health," says Dr. Peter Bourne, Mr. Carter's adviser on health issues. "But we're also concerned about a major fanfare over new initiatives, whose results are likely to be unclear."

"We are eager that a program like this be very practically oriented, where the goals are clearly laid out and able to be achieved," Dr. Bourne added in an interview.

"The feeling at the White House is that the HEW plan is not such a program," the *Sun* concluded.

* * * *

More than 2,400 doctors and druggists providing subsidized health services to needy persons have been identified as having "patterns of practice indicating a likelihood of fraud and abuse," HEW Secretary Califano has said.

He announced new details of Project Integrity, a program of HEW searching for corruption in subsidized medical care.

HEW has issued regulations, required under 1977 anti-fraud legislation, that set requirements for states creating fraud and abuse control units to monitor the federal-state Medicaid program.

The units should operate separately from the agency administering a state Medicaid plan, have the capacity to prosecute fraud or refer allegations of fraud to prosecutors, and investigate complaints from patients in nursing homes and mental institutions.

If states create such units, HEW will reimburse them for 90 percent of their operational costs, a government spokesman said.

Califano said Project Integrity has screened the billing claims of all 275,000 Medicaid physicians and pharmacists "and identified over 2,400 with patterns of practice indicating a likelihood of fraud and abuse."

More than 450 of the 2,400 doctors and drug-

gists are being investigated for potential Medicaid abuses.

Another 400 are undergoing "detailed field checks for potential criminal fraud," Califano said.

Cases involving about 200 have been closed as not warranting further investigation. The other cases are still in the investigation pipeline, Califano said.

HEW also plans to review another 44,000 cases where preliminary information has indicated the possibility of fraud and abuse.

* * * *

The number of Americans living in areas officially designated as having a physician shortage could increase by 56 percent to a total of 25 million under new criteria proposed by HEW.

Communities designated as having a physician shortage are eligible to apply for physicians services provided through HEW's National Health Service Corps or related federal programs. Of the estimated 25 million people, 15 million reside in inner cities according to the definition of what constitutes a shortage area. The remaining 10 million are in rural areas.

A shortage area under both new and former criteria may range in size from a group of neighboring counties to an urban neighborhood. Previously, a critical shortage level was reached when there were 4,000 or more people per primary care physician. The new criteria lowers the level to 3,500 or more per physician and even lower levels may be designated if indicators of need — infant death rates, health status of population and access to health services — are considered significantly adverse.

Separate shortage criteria are proposed for dentists, psychiatrists, pharmacists, podiatrists, optometrists and veterinarians.

* * * *

After years of wrangling politics, President Carter has decided to push for the establishment of a separate, Cabinet-level department of education as part of his plan for governmental reorganization.

To remove the decision as much as possible from the political arena, the President will appoint a special commission to study the need for such a move. Insiders say, however, that the commission will be stacked to assure the recommendation of the new department.

Long a strong opponent against splitting up

HEW, Secretary Califano said in reference to the White House proposal: "The President has made his decision, and as I have repeatedly stated, I will work to achieve the President's objectives in this area, as in all others."

* * * *

The cost of health care has risen for the population as a whole from 6.2 percent of the Gross National Product in 1967 to 8.6 percent of the GNP in 1976. During these same years the cost for a semi-private hospital room rose 169 percent and operating room costs rose 175 percent.

According to HEW's Annual Report on Health, life expectancy in the United States has continued to lengthen and is now at a new high of 72.5 years for those born in 1975. Life expectancy for those over 65 years has also increased, climbing 2.2 years since 1950.

HEW reports that 29 percent of the Nation's health care expenditures in 1976 were for treating those over 65. Per capita annual expense in this age group was \$1,521.

The share of public funding for health care in the elderly has risen from 30 percent in 1966 to 68 percent in 1976, and the number of beds in nursing homes tripled between 1963 and 1973.

Between 1950 and 1974 the number of physicians in the United States rose 70 percent from 232,697 to 394,448. The ratio of physicians to population increased 22 percent in this period from 14.9/1,000 to 18.2/1,000.

Physician visits per person per year was 5.0 in 1973 and 4.9 in 1976. The average length of a hospital stay was 8.1 days in 1973 and 7.9 days in 1976. The percentage of persons with one or more hospitalizations in one year was 10.7 percent in 1973 and 1976. Hospital discharges per 100 persons per year totaled 13.9 in 1973 and 14.1 in 1976.

The report also noted the rates of immunization among American children. In 1975 32 percent of children aged 1-4 years were not protected against measles, 38 percent were not protected against rubella, and 35 percent had no protection against polio.

Under a HEW contract, the American Association of Professional Standards Review Organizations has identified 11 surgical procedures which it says "have a significant potential for inappropriate utilization."

The Association's national council has adopted

a set of screening criteria for these procedures which will be sent to local PSROs. The surgical criteria "must not be viewed by local PSROs as mandating national standards," says the Chairman of the Association's Surgical Criteria Committee, John Bussman, M.D., of Portland, Ore.

Rather, the local PSRO "may wish to adopt or adapt the screening criteria for local use." In a letter to the Association's national council — "our committee has learned through experience and communications with PSROs across the country, that the 11 procedures have a significant potential for inappropriate utilization," Dr. Bussman said.

The 11 surgical procedures are:
abdominal hysterectomy, vaginal hysterectomy, coronary arteriography, cataract removal, dilation and curettage, tonsillectomy and adenoidectomy, cholecystectomy, hiatal hernia repair, lumbar disc excision for rupture or protrusion, meniscectomy, and appendectomy.

With respect to vaginal and abdominal hysterectomy, a subject of national attention, the national council said:

"Sterilization by abdominal (or vaginal) hysterectomy is acceptable only in the presence of concomittant uterine disease."

* * * *

All whole blood drawn after May 15, 1978, for transfusion must be labeled "paid" or "volunteer" donor.

The final regulation of the FDA specifies that persons who do not receive monetary payment for blood are classified as volunteers. The "volunteer" designation includes those who receive benefits other than money, such as membership in a blood assurance program or leave from work.

The labeling requirement also covers red blood cells, anti-hemophiliac factor, platelet concentrate, and single plasma.

The blood labeling rule caps a lengthy nationwide debate on national blood policy. In issuing the regulation, FDA Commissioner Donald Kennedy, Ph.D., said the labeling rule is "consistent with the goals of the government's national blood policy to move the country to an all volunteer system."

The incidence of post-transfusion hepatitis has been reported to be three to ten times higher with blood from paid donors versus blood from volunteers.

Dr. Kennedy said that 10,000 to 30,000 cases of post-transfusion hepatitis occur each year in the United States with at least 400 deaths resulting.

* * * *

Last October HEW conducted more than 100 hearings around the country to assess public opinion on national health insurance (NHI).

Now HEW has published its distillation of the people's voice, saying that the nation wants a NHI system to "build on the strengths of the existing system, reflect the lessons learned in other countries having 'mature' health insurance programs, develop approaches for coping with the current and anticipated cost pressures, and stress preventive care and health education efforts."

The report notes "while the public recognizes the need for NHI policy development, it urged that HEW proceed with extreme caution and gain from the positive and negative experiences of other nations, such as England, Sweden and Canada. The public's attitude is one of 'caveat emptor' for they do not want to decrease the quality and availability of medical care nor significantly increase the costs."

Over 8,600 individuals and organizations presented their view at the hearings and the report, written largely by HEW staff in the Atlanta Regional Office, says "while these hearings demonstrated that a majority of the American public favors development of a NHI plan, there was no agreement on the type of plan we should establish."

At least one area of the country, the Mid-West, strongly opposes NHI in any form. The majority sentiment in Kansas, Missouri, Iowa, and Nebraska is on record as being against the idea.

With respect to physician reimbursement the report says "virtually all respondents other than practicing physicians who dealt with the issue of physician reimbursement supported something other than fee-for-service, and a great many non-physicians expressed the opinion that the allowable fee (in whatever way that is to be determined) should constitute payment in full from a NHI program."

The HEW report also claims that "there was strong support voiced for utilizing primary care practitioners (physician assistants, nurse practitioners, etc.) in lieu of physicians."

There was a "clear consensus," in eight of the ten HEW regions, that "there should be a mix

of public and private financing," of NHL.

The New England states were divided on the mixing of public and private financing of health care.

"There was even stronger support for the view that those presently without health insurance should be covered through public financing, the majority of Americans continuing to be covered through private insurance plans," the report says.

The report is titled "The National Health Insurance National Outreach Report."

* * * *

President Carter has proposed in his tax message to the Congress changing medical deductions on personal income tax by combining the separate deductions for medical expenses and uninsured casualty losses into a new "extraordinary expense" deduction. The new deduction would be available only to the extent that these items together exceed 10 percent of the adjusted gross income.

The American Medical Association has before the Congress a proposal (H. R. 5188) that would

permit a taxpayer to deduct the full amount of medical and drug expenses paid for the medical care of himself, his spouse, and dependents.

* * * *

LANGSTON COLLECTION TO BE ENLARGED

The Langston Collection, in the new library of the University of Arkansas for Medical Sciences Campus, has been guided through the years by Dr. W. C. Langston to enhance our appreciation of duties to God and man. With Dr. Langston's death, this collection is being enlarged in honor of both Dr. Langston and his son, Dr. Robert H. Langston. This provides an opportunity for suggestions and contributions to this collection. Donations may be made to the "Langston Collection." Suggestions for books or donations may be mailed to:

The Langston Collection
Dr. Thomas A. Bruce, Dean
University of Arkansas
College of Medicine
4301 West Markham, Box 550
Little Rock, Arkansas 72201

THINGS TO COME



CARDIOPATHY OF AGING IV

Cardiopathy of Aging IV (heart disease in the elderly patient) will be presented in Little Rock, Arkansas, on May 16-17, by the Veterans Administration, the University of Arkansas College of Medicine, the Council on Clinical Cardiology of the American Heart Association, and the Tri-State Scientific Sessions of the American Heart Association. Information regarding this symposium may be obtained from —

J. E. Doherty, M.D., Program Director
Cardiopathy of Aging IV
300 East Roosevelt Road
Little Rock, Arkansas 72206

EMERGENCY HEALTH SERVICES CONFERENCE

The Tenth Annual Arkansas Emergency Health Services Conference will be held June 29-30, at the Camelot Inn Convention Center in Little Rock. There will be programs for Emergency Medical Technicians, nurses, and physi-

cians. The physicians' program is entitled, "Care of the Critically Injured." Programs are accredited by the American College of Surgeons, Committee on Trauma, American Academy of Family Physicians, American College of Emergency Physicians, Emergency Department Nurses Association and the National Emergency Medical Technicians Registry.

For additional information contact: The Arkansas Trauma Society, 550 Prospect Building, Little Rock, Arkansas 72207, (501) 661-1545, or Mr. Glen Acre, Bureau of Emergency Health Services, 4815 West Markham, Little Rock 72205, (501) 661-2239.

ASPEN MUSHROOM CONFERENCE

The Aspen Mushroom Conference, to be held August 13-18, will involve the identification of edible, poisonous, and hallucinogenic mushrooms; treatment of mushroom poisoning; and microscopy. Novice and advanced courses are offered, and the conference has been approved for Category I credit of the Physician's Recognition Award of the American Medical Association. The conference will be held at the Wildwood Inn, Snow-Mass-at-Aspen, Colorado. For more information contact Beth Israel Hospital, 1601 Lowell Boulevard, Denver, Colorado 80204.



PERSONAL AND NEWS ITEMS



Dr. Maris, right, receives plaque from Dr. Kuharich.

DR. MARIS RECOGNIZED

Dr. Mahlon Maris of Harrison recently received a plaque from the American Medical Association. Dr. Maris was cited for his "outstanding contribution to American Medicine through his membership on the Ad Hoc Committee on Services to Young Physicians." The plaque was presented to Dr. Maris by the Boone County Medical Society president, Dr. Richard Kuharich, during the Ninth Councilor District meeting in Harrison.

DR. MORRIS IS 103

Dr. John A. Graham recently joined Dr. Wilbrated his 103rd birthday. Dr. Morris practiced in McCrory and Woodruff County for seventy-six years before retiring in 1976.

DR. ELLIS HAS ASSOCIATE

Dr. John A. Graham recently joined Dr. William A. Ellis in his practice at Helena. Dr. Graham is in General Practice.

DR. LEAVELLE SEEKS ELECTION

Dr. Ray Leavelle of Nashville recently announced his candidacy for the office of Coroner for Howard County. Dr. Leavelle presently serves as deputy coroner.

DR. TALBOT HONORED

Dr. Allen G. Talbot, a General Practitioner, was recently named "Man of the Year" by the

Lake Village Chamber of Commerce. Dr. Talbot has practiced in Lake Village since 1954 and has been active in various civic and state organizations.

DR. KROCK MAKES VIOLINS

Dr. Fred G. Krock, a retired Fort Smith surgeon, keeps busy mending and making violins since his retirement five years ago. Dr. Krock is the co-founder of the Holt-Krock Clinic and began hand-making violins in 1951. He has made six more since that time.

CLINIC ESTABLISHED

A medical clinic is being established at Damascus as an outreach facility of the Fairfield Bay Medical Center. Dr. William C. McBryde will be in charge of the clinic in Damascus. Dr. James R. Allan has been appointed the Medical Director of the Fairfield Bay center.

DR. KING LOCATES IN SPRINGDALE

Dr. Ivan King recently moved to Springdale where he will provide week-end coverage for the Emergency Room at Springdale Memorial Hospital. Dr. King is a graduate of the University of Arkansas College of Medicine and had practiced in Massachusetts, Maine, and Little Rock prior to locating in Springdale.

DR. GULLETT MADE FELLOW

Dr. Robert R. Gullett, Jr., of Pine Bluff, was recently inducted as a Fellow of the American Academy of Orthopaedic Surgeons.

PHYSICIANS CERTIFIED

Several physicians have received board certification by the American Board of Family Practice. They are Dr. Russell W. Cobb, Malvern; Drs. James R. Gardial and James L. Gardner, Hot Springs; Dr. Jerry L. Hitt, Rogers; Dr. Joe D. King, Nashville; Dr. Rick Martin, Greenwood; and Dr. James E. Young of McGehee.

DOCTORS AUTHOR PAPER

A scientific paper on Angiodysplasia of the Colon, co-authored by Drs. Douglas Smart and Donald Browning of Little Rock, was presented at the March meeting of the First Annual Colonoscopy Congress held in Miami, Florida, by Dr. Browning.



NEW MEMBERS

BAXTER COUNTY MEDICAL SOCIETY

The Baxter County Medical Society has added the following new members to its membership roll:

DR. JAMES S. BECKMAN, JR., was born in Fort Smith and received his B.S. degree from the University of Arkansas in 1965. He was graduated from the University of Arkansas School of Medicine in 1970 and interned at St. Vincent Infirmary. Dr. Beckman received four years of general surgery residency training at the University of Arkansas Medical Center and two years of plastic and reconstructive surgery training at the University of Tennessee Medical Center in Memphis.

His office is located at 402 East 6th Street, Mountain Home, where he specializes in Plastic and Reconstructive Surgery.

DR. FRANCIS M. BRIAN, JR., is a native of Alexandria, Louisiana. Dr. Brian received his pre-medical education from Louisiana State University at Shreveport and was graduated from Louisiana State University School of Medicine in New Orleans in 1971. He completed his internship at Earl K. Long Memorial Hospital, Baton Rouge, Louisiana, and continued there for his Internal Medicine residency training.

Dr. Brian practiced in Baton Rouge prior to locating in Mountain Home where he is associated with the Baxter General Hospital as Emergency Medicine physician.

DR. RICHARD L. BURNETT was born in Harrison and received his B.A. degree from the University of Arkansas in 1970. His M.D. degree was received from the University of Arkansas School of Medicine in 1974, and he completed his internship at St. Vincent Infirmary, Little Rock.

Prior to moving to Mountain Home, Dr. Burnett practiced two years at the Sam Howell Memorial Hospital in Cartersville, Georgia. Dr.

Burnett is a General Practitioner. He is associated with Dr. John Guenthner and Dr. Arthur Beard at 126 West 6th in Mountain Home.

DR. WILLIAM H. FORD was born in Hot Springs. He received a B.A. degree from the University of Missouri, Columbia, in 1962, and was graduated from the University of Missouri College of Medicine in 1966. Dr. Ford interned at Denver General Hospital in Colorado, and was in residency training at Hennepin County Medical Center, Minneapolis, Minnesota. He served in the United States Air Force and was stationed at the Little Rock Air Force Base in Jacksonville.

Dr. Ford's office is located at 402 East Sixth Street in Mountain Home, where he specializes in General Surgery.

DR. PAUL WILBUR is a native of Blackwell, Oklahoma. He received a Bachelor of Architecture degree from Oklahoma State University at Stillwater in 1959, and was graduated from the University of Arkansas College of Medicine in 1976. He continued at the University of Arkansas Medical Center for his Family Practice internship.

Dr. Wilbur has been associated with Dr. Robert L. Kerr at #1 Medical Plaza, Mountain Home, for the past several months. He is a General Practitioner.

DR. SAOWAREE PONRARTANA

The Chicot County Medical Society has accepted Dr. Saowaree Ponrartana into its membership. Dr. Ponrartana was born in Bangkok, Thailand, and received her pre-medical education at Chulalongkorn University, graduating in 1964. In 1969, Dr. Ponrartana received her medical degree from Siriraj Medical School, Mahidol University, Thailand. She interned at Siriraj Medical School for a year and then served a year internship at Toledo Hospital in Ohio. Dr. Ponrartana was in residency training in Pediatrics at Jersey City Medical Center, New Jersey, from 1971 until 1972; and the Hospital of St. Raphael, New Haven, Connecticut, from 1972-1973. Prior to locating in Lake Village, Dr. Ponrartana was associated with the Lincoln Hospital, Bronx, New York, and Mott Haven Neighborhood Family Care Center. Dr. Ponrartana specializes in Pediatrics at the Chicot Medical Group in Lake Village.

DR. PRASART PONRARTANA

Dr. Prasart Ponrartana has been added to the membership roll of the Chicot County Medical

Society. He attended Mahidol University in Bangkok, Thailand, and he was graduated from Siriraj Medical School, Mahidol University, Bangkok, Thailand, in 1966. Dr. Ponrartana continued at the Siriraj Medical School for his internship, and he completed an internship at Mount Vernon Hospital, New York. He was in Internal Medicine residency training at Jersey City Medical Center, New Jersey, and St. Clare Hospital and Health Center, New York City, from 1970 until 1973.

Dr. Ponrartana was associated with the Bronx Labanon Medical Clinic, Bronx, New York, prior to moving to Lake Village. He is associated with the Chicot Medical Group in Lake Village, where he specializes in Internal Medicine.

CRAWFORD COUNTY MEDICAL SOCIETY

The Crawford County Medical Society has added three new members to its membership roll:

DR. DAVID H. ROBERTS, who was born in Hope, Arkansas, and received his B.S. degree from the University of Central Arkansas at Conway in 1969. In 1973, Dr. Roberts was graduated from the University of Arkansas College of Medicine, and he completed his internship at St. Vincent Infirmary in Little Rock. He served in the United States Navy Reserves for two years of active duty as a general medical officer, after which he received Radiology residency training at the University of Arkansas Medical Center.

Dr. Roberts is in Family Practice at 1103 Chestnut in Van Buren.

DR. KENNETH I. STONE, who is a native of Portland, Oregon. Dr. Stone received his pre-medical education at Walla Walla College, College Place, Washington. In 1976 he was graduated from Loma Linda University School of Medicine, Loma Linda, California, and interned at St. John Hospital in Detroit, Michigan.

Dr. Stone is in General Practice at East Twentieth and South Main Streets in Van Buren.

DR. MARCIA STONE, who was born in Lincoln, Nebraska, and received a B.A. degree from Southwestern Union College in Keene, Texas, in 1972. Dr. Stone was graduated from Loma Linda University School of Medicine, Loma Linda, California, in 1976. Her Obstetric-Gynecological internship was served at St. John Hospital, Detroit, Michigan. Dr. Stone is a General Practitioner,

with her office located at East Twentieth and South Main Streets in Van Buren.

DR. JACK A. CATES

The Garland County Medical Society has recently added the name of Dr. Jack A. Cates to its membership roll. Dr. Cates was born in Louisville, Kentucky. He received his B.S. degree from the University of Nebraska at Lincoln in 1966 and he was graduated from the University of Nebraska College of Medicine in Omaha in 1970. He interned at Nebraska Methodist Hospital in Omaha, and then served in the United States Air Force from 1971 until 1974.

After completion of his military service, Dr. Cates returned to the University of Nebraska where he completed a three-year Dermatology residency. He is associated with the Stough Dermatology and Cutaneous Surgery Clinic at 99 Little Pine in Hot Springs.

DR. ALLEN D. KINCHELOE

The Garland County Medical Society has announced that Dr. Allen D. Kincheloe is a new member of that Society.

Dr. Kincheloe was born in Portsmouth, Virginia. He received his B.S. degree from Austin Peay State College in Clarksville, Tennessee, in 1966. In 1970, Dr. Kincheloe was graduated from the University of Louisville School of Medicine, Louisville, Kentucky, and he continued there for his internship. He served in the United States Air Force from 1971 until 1973, and then completed his residency training in Orthopaedics at the University of Louisville School of Medicine.

Dr. Kincheloe is an Orthopaedic Surgeon associated with Drs. Thomas M. Durham and DuBose Murray at 505 West Grand in Hot Springs.

DR. TRONG VAN VU

The Howard-Pike County Medical Society has accepted Dr. Trong Van Vu into its membership. Dr. Vu is a native of Hanam, Vietnam. He received his pre-medical education at the University of Hue, Faculty of Sciences in South Vietnam. In 1974, Dr. Vu was graduated from the University of Hue Medical School, and he completed his internship at Central Hospital of Hue, South Vietnam. Dr. Vu practiced at Central Hospital from 1974 until 1975. In 1977, Dr. Vu completed an internship at the University of Arkansas Medical Center. He has been with the Dierks Medical Association since November 1977, where he is a General Practitioner.

DR. JOHN T. HERRON

Dr. John T. Herron of Pine Bluff has been accepted into the membership of the Jefferson County Medical Society. Dr. Herron is a native of Lonoke and received his B.A. degree from the University of Oklahoma in 1932. He was graduated from the University of Arkansas School of Medicine in 1936, and interned at Scott-White Hospital in Temple, Texas. He was graduated from the Harvard School of Public Health in 1949 with a Masters of Public Health degree.

Dr. Herron practiced in Little Rock from 1938 to 1939, Hamburg from 1939 to 1941, and Helena from 1941 until 1943. In 1943, he returned to Little Rock where he was associated with the Arkansas State Health Department until 1972. In 1972, Dr. Herron moved to Salem, Oregon. In July 1977, he relocated in Arkansas at 2306 Rike Drive in Pine Bluff. Dr. Herron is certified by the American Board of Preventive Medicine and Public Health.

DR. RAJASEKHARA R. YALAMANCHILI

Dr. Rajasekhara R. Yalamanchili has become a member of the Jefferson County Medical Society. Dr. Yalamanchili was born in Mulkanoor, India, and received his pre-medical education in India. He was graduated from Gandhi Medical College, Hyderabad, India, in 1973. He interned at the Polk General Hospital, Bartow, Florida, and received residency training in Family Practice at Alachua General Hospital, Gainesville, Florida, from 1976 until 1977.

Dr. Yalamanchili is in Family Practice at 1310 Cherry Street in Pine Bluff. He holds a teaching appointment at the University of Arkansas College of Medicine.

DR. FRANK M. LAWRENCE

The Pope County Medical Society has accepted Dr. Frank M. Lawrence as a new member. Dr. Lawrence was born in Dardanelle and was graduated from Ouachita Baptist College, Arkadelphia, in 1963. In 1967, Dr. Lawrence was graduated from the University of Arkansas College of Medicine, and he interned at Brooke General Hospital, Fort Sam Houston, Texas. His residency training in Ophthalmology was completed at Brooke General Hospital in 1972. From 1973 until 1977, Dr. Lawrence served as chief of Ophthalmology and chief of the Eye, Ear, Nose and Throat Service at Darnall Army Hospital in Fort Hood, Texas.

He is associated with Drs. Ellis Gardner and Max J. Mobley at the Russellville Eye Clinic.

DR. KELLEY H. MEYER

A new member of the Pope County Medical Society is Dr. Kelley H. Meyer. Dr. Meyer is a native of Little Rock. He received a B.A. degree from Vanderbilt University, Nashville, Tennessee, and did graduate work at Middle Tennessee State University Graduate School in Murfreesboro. He was graduated from the University of Arkansas School of Medicine in 1975 and received his internship training at the University of Arkansas Medical Center in Little Rock. Dr. Lawrence received residency training in surgery at St. Thomas Hospital in Nashville, Tennessee. He is a Family Physician associated with Drs. Douglas Lowery and David Williams at 809 West Main in Russellville.

PULASKI COUNTY MEDICAL SOCIETY

The Pulaski County Medical Society has added the following new members:

DR. DAN P. CHISHOLM, who was born in Amarillo, Texas. Dr. Chisholm was graduated from Little Rock Central High School in 1957, and received his B.A. degree from Vanderbilt University, Nashville, Tennessee, in 1961. He was graduated from Vanderbilt University School of Medicine in 1965, and continued at the Vanderbilt University Medical Center for his internship. Dr. Chisholm completed a three-year residency in Radiology at Columbia Presbyterian Medical Center in New York, New York, in 1969.

Dr. Chisholm was associated with the Walla Walla Radiology Associates, Walla Walla, Washington, from 1973 until 1977. He is with Radiology Associates, P.A., at 500 South University in Little Rock.

DR. D. BUD DICKSON, who is a native of Mount Vernon, Texas. He received his B.B.A. degree from Southern State College in Magnolia, Arkansas, in 1965. In 1969, Dr. Dickson was graduated from the University of Arkansas College of Medicine. He interned at Parkland Memorial Hospital, Dallas, Texas, and remained there for a year of General Surgery training. Dr. Dickson completed a three-year Orthopaedic residency at Massachusetts General Hospital in Boston in 1974, and he held an Aufranc Fellowship in Adult Reconstructive Orthopaedics. He was an instructor of Orthopaedic Surgery at Tufts Medical School in Medford, Massachusetts. He was in

private practice in Boston, Massachusetts, for two years prior to his relocating in Arkansas. Dr. Dickson specializes in General and Reconstructive Orthopaedic Surgery at 500 South University in Little Rock. He is certified by the American Board of Orthopaedic Surgeons.

DR. LOUIS G. SINGLETON, who was born in Tyronza, Arkansas. He received his B.S. degree in biology from Arkansas Tech University, Russellville, in 1962. He was graduated from the University of Arkansas College of Medicine in 1971, and served his internship at the University of Arkansas Medical Center. Dr. Singleton remained at the Medical Center for a three-year Pathology residency. He is certified by the American Board of Pathology. He serves as a Clinical Assistant Professor of Pathology at the University of Arkansas College of Medicine. Dr. Singleton is a Pathologist at the Baptist Medical Center in Little Rock.

DR. JOHN E. SLAVEN, who is a native of Little Rock. He was graduated from Fayetteville High School, and received his pre-medical education at the University of Arkansas. In 1969, Dr. Slaven was graduated from the University of Arkansas College of Medicine. He completed his internship at the University of Kansas Medical Center in Kansas City, Kansas. Dr. Slaven received his Pathology residency training at the University of Kansas Medical Center and the McMaster University in Hamilton, Ontario, Canada. Dr. Slaven is board certified by the American Board of Pathology. He is an Assistant Clinical Professor of Pathology at the University of Arkansas College of Medicine. Dr. Slaven is a Pathologist at the Baptist Medical Center in Little Rock.

DR. H. DAVID BRYAN

Dr. H. David Bryan has been added to the membership of the Saline County Medical Society. He was born in Fort Smith, and received his B.A. degree from the University of Arkansas at Fayetteville in 1955. He was graduated from Tulane University School of Medicine, New Orleans, Louisiana, in 1958, and interned at the Good Samaritan Hospital, Phoenix, Arizona. Dr. Bryan was associated with the United States Public Health Service, Indian Hospital, Winterhaven, California, from 1959 until 1961. He was in Anesthesiology residency training at the Uni-

versity of Arkansas Medical Center from 1961 until 1963.

Dr. Bryan was associated with the Yuma Regional Medical Center Hospital in Arizona for fourteen years, and was an associate professor at Arizona Medical School in Tucson. He has been associated with the Veterans Administration Hospital in Little Rock since June 1977, and he serves as an associate professor at the University of Arkansas College of Medicine.

SEBASTIAN COUNTY MEDICAL SOCIETY

The Sebastian County Medical Society has accepted the following new members:

DR. L. FORD BARNES, who is a native of Manhattan, Kansas. Dr. Barnes received his pre-medical education at Southern State College, Magnolia, Arkansas, and was graduated from the University of Arkansas College of Medicine in 1969. Dr. Barnes interned at the University of Kansas Medical Center in Kansas City, Kansas, and then completed two years of Internal Medicine residency training at the University of Arkansas Medical Center. He continued there from 1972 until 1974 for a Fellowship in Hematology-Oncology. Dr. Barnes was an instructor in the Department of Internal Medicine at the University from 1973 until 1974. He then served in the United States Air Force two years and was stationed at Keesler Air Force Base Medical Center in Mississippi.

Dr. Barnes practiced in Lake Charles, Louisiana, for six months prior to his association with Cooper Clinic in Fort Smith, where he is an Internist with subspecialties in Hematology and Medical Oncology. He is certified by the American Board of Internal Medicine in Internal Medicine and Medical Oncology.

DR. MICHAEL P. DULLIGAN, who was born in Tampa, Florida. Dr. Dulligan received his pre-medical education at Tulane University in New Orleans, Louisiana, graduating in 1965. In 1969, he was graduated from Tulane University School of Medicine. His intership was completed at Hennepin County General Hospital in Minneapolis, Minnesota, and he returned to Tulane Medical Center for one year of General Surgery training. After serving in the United States Navy from 1971 until 1973, Dr. Dulligan completed a Neurosurgery residency at Charity Hospital of Louisiana State University in New

Orleans. In August 1977, Dr. Dulligan moved to Fort Smith where he is a Neurosurgeon on the staff at Holt-Krock Clinic.

DR. DAVID W. HAMBLIN, who is a native of Bartlesville, Oklahoma. He received his B.S. degree from Central State College in Edmond, Oklahoma, in 1969. He was graduated from the University of Oklahoma School of Medicine in 1972. Dr. Hamblin interned at St. Francis in Tulsa, Oklahoma, and continued there for a year of General Surgery training. In 1977 he completed a three-year Urological residency at the Oklahoma University Science Center in Oklahoma City.

Dr. Hamblin is an associate of Dr. Frederick Feder at 720 Lexington Avenue in Fort Smith, specializing in Urology.

DR. JOHN D. HOFFMAN who was born in Chicago, Illinois. He received his B.S. degree from the University of Illinois in 1967, and was graduated from the University of Illinois College of Medicine in Chicago in 1971. He completed his internship and Obstetric-Gynecology residency training at Grady Memorial Hospital in Atlanta, Georgia. Dr. Hoffman served in the United States Army from 1975 until 1977, and was stationed at the Darnall Army Hospital in Fort Hood, Texas.

He specializes in Obstetrics-Gynecology and is associated with Cooper Clinic in Fort Smith.

DR. WAYNE WHETSELL, who is a native of Bowman, South Carolina. He received his B.S. degree from Wofford College in Spartanburg, South Carolina, in 1965. He was graduated from the University of South Carolina College of Medicine, Charleston, in 1968. Dr. Whetsell served in the United States Air Force for approximately ten years. He was an intern at Keesler Air Force Base Medical Center in Mississippi. Dr. Whetsell completed two years of residency training there in 1973, before being transferred to Lackland Air Force Base, Texas, where he received two years of residency training at Wilford-Hall Medical Center.

Dr. Whetsell was stationed at the United States Air Force Academy Hospital in Colorado for one year and was then transferred to Andrews Air Force Base, Maryland, where he was chief of the Pulmonary Disease Service at Malcolm Grow Medical Center from 1974 until 1976; and chief

of Internal Medicine Service from 1976 until 1977.

Dr. Whetsell is board certified in Pulmonary Disease by the American Board of Internal Medicine.

He is associated with Cooper Clinic in Fort Smith.

UNION COUNTY MEDICAL SOCIETY

The Union County Medical Society has added six new members to its membership roll. They are:

DR. WALTER J. GILLER, JR., who is a native of El Dorado. He received his B.S. degree from the University of Arkansas in 1963, and his M.D. degree from the University of Arkansas School of Medicine in 1967. Dr. Giller served his internship at Menorah Medical Center in Kansas City, Missouri. He served in the United States Air Force from 1968 until 1976, during which time he was in Orthopedic Surgery training at Wilford Hall United States Air Force Medical Center, San Antonio, Texas.

Dr. Giller is presently Commander of the 917th Tactical Air Command Fighter Group, United States Air Force Reserve. He served in the Air Force hospitals for approximately nine years prior to beginning private practice in January 1977 at 516 West Faulkner in El Dorado. Dr. Giller is associated with Dr. James C. Callaway in the practice of Orthopedic Surgery.

DR. RICHARD D. JENNINGS, who was born in Canyon, Texas. Dr. Jennings received his pre-medical education at Abilene Christian College, Abilene, Texas; Lubbock Christian College in Lubbock, Texas, and Harding College in Searcy, Arkansas, receiving his B.S. degree from the latter in 1964. In 1969, he was graduated from the University of Arkansas College of Medicine. He interned at St. Francis Hospital in Tulsa, Oklahoma, and was in Pathology residency training at St. Vincent Hospital and Medical Center in Portland, Oregon. Dr. Jennings served as flight surgeon in the United States Air Force from 1970 until 1973. He specializes in Pathology at 443 West Oak in El Dorado.

DR. STEVE A. JONES, who is a native of Magnolia, Arkansas. Dr. Jones received his pre-medical education at Southern State College in Magnolia, and was graduated from the University of Arkansas College of Medicine in 1972.

His straight medicine internship was at the University of Arkansas Medical Center and the Veterans Administration Hospital in Little Rock. Dr. Jones completed two years of Internal Medicine residency training at the University of Arkansas Medical Center in 1975, and then held a two-year Gastroenterology Fellowship.

He served as an instructor in Medicine at the University of Arkansas College of Medicine from 1975 until 1977. Dr. Jones is board certified in Internal Medicine and specializes in Gastroenterology at 714 West Faulkner in El Dorado.

DR. MOISES ANTONIO MENENDEZ, who was born in Lima, Peru. Dr. Menendez received his M.D. degree from the University of Lima in 1970. He interned at Bon Secours Hospital, Grosse Pointe, Michigan, and completed four years of Surgery residency training at Ohio Valley Medical Center in Wheeling, West Virginia, in 1976.

Dr. Menendez specializes in General and Vascular Surgery at 412 North Washington in El Dorado.

DR. JOHN McGRAW, who is a native of Philadelphia, Pennsylvania. Dr. McGraw received his B.S. degree from Regis College, Denver, Colorado, in 1934, and his M.D. degree from the University of Colorado School of Medicine in 1939. He completed his internship at Colorado General Hospital in Denver. From 1941 until 1946, Dr. McGraw served in the Medical Corps. From 1946 until 1947, he held a Fellowship at the University of Minnesota in Minneapolis. He practiced in Houston, Texas, from 1950 until 1965. From 1951 until 1957, he served as an associate professor at the University of Texas in Houston, and from 1961 until 1965, he served as a professor. Dr. McGraw also served as consultant radiologist to the Herman Hospital and the Regional Office of the Veterans Administration in Houston. Dr. McGraw practiced in Memphis, Tennessee, from 1965 until 1968, and

he was located in Bakersfield, California, from 1968 until 1972. He moved to Shreveport, Louisiana, in 1972 and practiced there until 1975. Dr. McGraw retired in 1975, but returned to practice in March 1977, when he moved to El Dorado where he practices Radiology at the Union Memorial Hospital. He is certified by the American Board of Radiology.

DR. RAYMOND E. PINKERTON, who was born in Amity, Arkansas. He received his pre-medical education at Henderson State Teachers College in Arkadelphia, where he received his B.A. degree in 1946. In 1949, Dr. Pinkerton was graduated from the University of Arkansas College of Medicine. Following the completion of his internship at Scott-White Clinic and Hospitals in Temple, Texas, he served in the United States Army for twenty-two years, receiving his residency training in Anesthesiology at Brooke Army Hospital in San Antonio, Texas. Dr. Pinkerton was in general practice at Gurdon, Arkansas, for four years, and he practiced Anesthesiology in Ponca City, Oklahoma, for sixteen years.

Dr. Pinkerton is an Anesthesiologist, associated with the Union Memorial Hospital in El Dorado.

DR. JAMES R. ALLAN

The Van Buren County Medical Society has accepted Dr. James R. Allan as a new member. Dr. Allan was born in Shelbina, Missouri, and was graduated from Northwest Missouri State College at Maryville in 1950. He received his M.D. degree from the University of Nebraska College of Medicine at Omaha in 1955, and interned at Lima Memorial Hospital in Lima, Ohio. Dr. Allan practiced in Rockport, Excelsior Springs, Lee's Summit, and Liberty, Missouri. While in Liberty, he served as chairman of the Department of Family Practice at the Liberty Hospital. Dr. Allan is board certified by the American Board of Family Practice. He is Medical Director of the Fairfield Bay Medical Center in Fairfield Bay.



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Case Report

Prinzmetal Variant of Angina Pectoris

David M. Johnson, M.D.*

PRINZMETAL VARIANT OF ANGINA PECTORIS

In 1959, Prinzmetal, et al,¹ described a variant of angina pectoris. Although it caused chest discomfort similar to classic angina pectoris in location and quality, it differed in the following characteristics:

- The chest discomfort began more commonly at rest, but not with exertion.
- ST elevation occurred during chest pain but the electrocardiogram was normal in the absence of pain.
- There was a single coronary artery disease with a focal lesion.
- Exercise testing was characteristically normal.
- Cardiac arrhythmias commonly occurred during pain.
- Frequent myocardial infarction occurred in the involved area.

Reported herein is such a case with review of the pertinent medical literature regarding this most interesting syndrome.

CASE SUMMARY

L. C. — SMC #19007:

This 58-year-old white female was brought to the Emergency Room on 1-14-76 with syncope and chest pain. She stated the onset of substernal chest discomfort associated with nausea, vomiting and diaphoresis. This began as bilateral hand and arm pain and rapidly moved to the substernal region of the chest. Shortly after admission, the patient lost consciousness and was found to have repeated ventricular tachycardia, which was successfully treated. Her admission electrocardiogram during pain revealed marked ST segment elevation in the inferior leads. The ST segment elevation disappeared following the relief of pain and stabilization of the patient.

On close questioning, the patient stated she had had similar but more mild episodes for the last two years. They would occur on a monthly basis and would last less than 30 minutes, but were not necessarily related to activity. She stated most of these occurred with rest or during the night while asleep.

The patient smokes cigarettes and has a 40 to 50 pack year history of cigarette smoking. She had no history of lipid abnormalities or diabetes. She had not been hypertensive and there was no history of cardiac murmur, cardiomegaly, or rheumatic fever. She did describe shortness of breath and dyspnea without orthopnea or paroxysmal nocturnal dyspnea. The patient was on no medication prior to admission.

Past medical and surgical history were unremarkable.

Physical examination revealed blood pressure 90/60; pulse 72 and regular; respirations 18. The heart had a regular rhythm without murmur. There was a fourth heart sound but no third heart sound noted. A2 was equal to P2. There was no definite enlargement of the left or right ventricular chamber on palpation or percussion of the precordium. Chest was clear to auscultation and percussion. The patient did exhibit an occasional rhonchi and expiratory wheezes. Remainder of the physical examination was normal.

Laboratory data revealed hemoglobin of 15.1 gm, hematocrit of 44%, and a white count of 13,000 with 69% polys. Sodium was 128, potassium 4.0, chloride 102, and CO₂ was 19. BUN was 11 and fasting blood sugar was 359. Serum monitoring, SGOT, and LDH during hospitalization were normal.

Chest x-ray showed fibrotic-appearing densities in the right upper lung field with some elevation of the right hilum. A lung scan was normal.

The patient was treated in the Coronary Care

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Unit for ventricular irritability and controlled with Lidocaine. She was placed on a maintenance dose of Quinidine sulfate. The electrocardiogram the following day showed a pattern of an old inferior infarction with no acute injury pattern. She did well and was transferred out of the Coronary Unit after no significant arrhythmias was present over the next three days. On 1-21-76, she had another severe episode of chest pain. Electrocardiogram at that time revealed an inferior injury pattern. She was treated with seven sublingual nitroglycerin tablets over the next 25 minutes with resolution of the pain. Electrocardiogram performed immediately after resolution of pain again showed the pattern of an old inferior infarction with no acute injury pattern. At that time it was felt that the patient had Prinzmetal's angina and she was started on Propranolol therapy, with improvement in chest symptoms. She was discharged on 1-26-76 with the impression:

- (1) Organic heart disease
 - I. Probable arteriosclerotic heart disease.
 - II. Probable major proximal coronary occlusive disease vs. coronary artery spasm.
 - III. Normal sinus rhythm, compensated; Prinzmetal's angina—repetitive ventricular tachycardia.
 - IV. Functional class IV at present.
- (2) Diabetes mellitus on insulin therapy—2 hour blood sugar ranging from 150 to 180.

Because coronary arteriograms were needed, she was transferred to a Little Rock hospital for coronary catheterization. At the time of discharge, medications were Propranolol 20 mg. q.i.d., Quinidine SO₄ 200 mg. q.i.d., Isordil 5 mg. sublingual q4h while asleep and every 2 hours while awake, NPH Insulin 30 units each morning, and nitroglycerin sublingual p.r.n. for chest pain.

The patient was admitted to the Arkansas Baptist Hospital on 1-26-76 under the care of a Little Rock cardiologist. On 1-27-76, a left heart catheterization with left ventricular angiogram and right and left coronary arteriogram was performed. On left ventricular angiogram, the patient had inferior wall hypokinesis and a slightly elevated left ventricular end-diastolic pressure. The left coronary artery revealed an area of 95% narrowing of the proximal left circumflex artery.

It was noted the patient had a left dominant circulatory pattern. The right coronary artery was very small ending approximately in the acute margin. The remainder of the vessels did not reveal evidence of obstructive disease.

It was strongly recommended she have coronary artery surgery but the patient completely refused this possibility. All risks of the surgery versus not having the surgery, and specifically the danger of repetitive ventricular tachycardia associated with her angina pectoris, were explained. She was discharged 1-30-76 on Isordil 10 mg. q.i.d., Propranolol 20 mg. q.i.d., and Quinidine sulfate 10 mg. q6h. She also remained on insulin therapy as outlined, and an 1800 calorie diabetic diet. She was strongly advised to discontinue cigarette smoking. The final impression was:

- (1) Organic heart disease
 - I. Arteriosclerotic heart disease.
 - II. 95% narrowing of the proximal left circumflex.
 - III. Normal sinus rhythm, compensated, Prinzmetal's angina with history of repetitive ventricular tachycardia with abnormal left ventricular angiogram and inferior hypokinesis.
 - IV. Functional class III.
- (2) Diabetes mellitus, insulin dependent, controlled with insulin replacement.

The patient was seen for follow-up post catheterization on 2-2-76 and again refused surgery. She was continued on Propranolol, Isordil and Quinidine sulfate as outlined.

She was last seen on 3-1-76 feeling well and using no nitroglycerin. Blood pressure was 110/70; her heart was regular at a rate of 70 per minute. Chest examination revealed bilateral expiratory wheezes, and she has continued to smoke cigarettes. She was asked to return in two weeks for follow-up, but failed to report.

DISCUSSION

Following Prinzmetal's work, reports from other investigators confirmed his initial impressions. Although ordinarily only a single vessel was involved, multivessel involvement was also noted.²

With the development of coronary saphenous vein bypass surgery, the identification of this syndrome became more than academic. Patients with single vessel disease who had adequate distal run-off and myocardial function became good

candidates for bypass surgery. Their otherwise poor prognosis and recurrent episodes of chest pain made surgery more applicable.³

Recent reports have described at least 41 patients with Prinzmetal's variant angina who have been studied by coronary arteriography or post-mortem examination.⁴⁻⁸ Of these cases, 19 had proximal occlusive coronary artery disease. One of the 19 patients had associated spasm during arteriography. Eight of the 41 patients had normal or less than 25 percent occlusion of the coronary arteries. Three of the eight "normal" patients had demonstrated spasm during coronary arteriography, with ST elevation on electrocardiogram and chest pain. This indicates that about 75 percent of patients with Prinzmetal's variant angina will have severe occlusive coronary artery disease; a smaller number will have normal or near normal coronary arteries. Spasm during arteriography has been documented in the latter group. The high incidence of severe occlusive proximal disease would indicate that all patients with this syndrome should have coronary arteriography.

Pain in variant angina occurs almost always at rest and is rarely reproducible with exercise. Any definition of variant angina is complicated by the fact that pre-infarction angina is not infrequently characterized by recurrent pain at rest. Prinzmetal¹ pointed out that "pre-infarction angina by definition leads to infarction in a short time and the attacks of angina tend to grow increasingly severe."

Elevation of the ST segment is characteristic of, but not limited to, variant angina.

Absence of arteriographic evidence of coronary artery disease in patients with Prinzmetal angina has been reported by a number of workers.^{5,9} If this is true, another mechanism must be present.

Coronary spasm, occurring in a normal vessel or triggered at a site of mild disease, has been postulated as a mechanism of Prinzmetal's variant angina, and reports documenting coronary spasm have appeared.^{5,10,11} The spasm is relieved by nitroglycerin. Spasm has been postulated as the cause of myocardial infarction,¹² and is the probable cause of chest pain in nitrate workers when their exposure is stopped.¹³

Dhurandhar¹⁰ in 1972 described a patient with spasm of the proximal right coronary artery. A bypass graft was performed but, despite a patent graft, the angina recurred and the patient died.

The only significant finding at autopsy was a plaque that narrowed the right coronary artery by 75% at the site of the spasm. This supported Prinzmetal's hypothesis that variant angina is produced by spasm of a coronary artery with a compromised lumen. The patient he reported had disturbances of rhythm during episodes of pain, which is commonly described.^{1,14}

Prinzmetal also proposed that increases in coronary artery tone with a compromised lumen led to temporary occlusion of the artery with resultant pain and electrocardiographic changes.¹ If spasm of a coronary artery is the cause of this syndrome, the mechanism of the spasm is not clear.

Cheng, et al,⁵ in 1973 discussed five cases of variant angina studied with coronary arteriograms. Four of these had normal coronary arteries. He derived two important conclusions from this study. First, identical EKG changes may be observed in the presence and absence of pain and thus the severity and incidence of variant angina could be underestimated. Second, until a larger population of patients are studied, one must not assume that all patients with this syndrome are operative candidates for coronary saphenous vein bypass surgery.

The occurrence of coronary spasm offers a logical account for anginal attacks that occur at rest and are not associated with tachycardia, elevated blood pressure, or increased cardiac work. It is possible that spasm could result from circulating substances on smooth muscles of arteries, which could account for angina during chilling and smoking. One case of variant angina initiated by ingestion of ice water has been described.¹⁵ However, spasm has not consistently been associated with the occurrence of angina in either normal or diseased vessels.¹⁶ Also, when it occurs during coronary arteriograms, it is usually asymptomatic and not associated with EKG changes.

Hart and associates¹¹ in 1974 described a patient with recurrent tachycardia who had a single coronary artery demonstrated by coronary arteriography. Arterial spasm with chest pain and PVCs occurred during arteriography. A saphenous vein bypass graft was done without success and pain recurred. They also questioned the use of bypass grafting for relief of symptomatic coronary artery spasm.

King, et al,¹⁷ in 1973 described severe narrow-

ing producing nearly total occlusion of a minimally diseased right coronary artery in a patient with Prinzmetal's variant angina. ST segment elevation occurred during periods of chest pain precipitated by emotional upset. Similar nocturnal changes were associated with rapid eye movement (REM) and sleep from which the patient would at times awaken with chest pain. Treatment with Propranolol resulted in greater intensity and duration of the chest pain. Sublingual Isosorbide Dinitrate completely abolished the chest pain. King suggested that this therapeutic response was consistent with the possibility that excessive response of the mildly diseased arterial segment to catecholamines might have caused the arterial spasm. Serum levels of catecholamines have been shown to rise with anxiety¹⁸ and it was speculated that the alpha receptors responded to Propranolol and the favorable response to nitroglycerin are consistent with this possibility.

Yasue,¹⁹ et al, in 1974 evaluated different drugs in ten patients with variant angina in an attempt to find the role of the autonomic nervous system in the pathogenesis of this syndrome. In these cases methacholine induced the attacks and atropine suppressed the attacks. Epinephrine induced attacks in two patients and propranolol was without effect in suppressing the attacks. He concluded that the enhanced activity of the parasympathetic nervous system occurring at rest is involved in the initiation of the attacks. This stimulation of the sympathetic nerve in turn induces coronary artery spasm by activating alpha (vasoconstrictor) receptors present in the large coronary arteries.

The fact that the anginal attack was induced by the administration of the parasympathomimetic drug, methacholine, and was suppressed by the parasympatholytic drug, atropine, strongly suggests that the enhanced parasympathetic nervous system is involved in the onset of the attack. The fact that the attacks occur at rest and not after exertion is compatible with this concept. It is known that the parasympathetic activity is increased during rest and suppressed during exercise.²⁰ Thus it appears probable that excessive parasympathetic activity stimulates the sympathetic nerve, causing vasoconstriction of large coronary arteries by way of alpha receptors present in coronary arteries. This spasm pro-

duces the anginal attacks and associated ST segment elevation on electrocardiogram.

Treadmill exercise testing in variant angina is of limited help in differentiating patients with occlusive coronary artery disease from those with coronary spasm. In Cheng's series⁵ of four patients with normal coronary arteries and variant angina, in only one was there ST segment elevation and chest pain during an exercise test. Care must be taken in using stress testing for this group, however, because of the possibility of severe proximal occlusive disease and the precarious balance of oxygen demands and delivery. In general, ST segment elevation during exercise at onset of chest pain may be indicative of severe proximal occlusive disease.²¹

Kemp²² reported an abnormal stress test in a 54-year-old man with variant angina. Intermittent ST segment elevation was manifested with treadmill stress testing associated with an episode of chest discomfort. His finding was that not all patients with ST segment elevation at rest during anginal episodes will have reproducible ST elevation during or after exercise. The use of treadmill stress testing as a potential case finder needs to be cautioned.

Sweet,²³ et al, reported a patient with atypical chest pain and a resting ST-T abnormality that reverted to normal with exercise. However, he experienced severe chest pain shortly after stopping exercise and a later electrocardiogram showed an acute anterolateral infarction.

Exercise testing is being used more and more to evaluate cardiac patients, and patients with atypical chest pain are very likely to undergo stress testing. This test is safe with a mortality of 0.01 percent;²³ however, patients with variant angina may be at particularly high risk for stress testing.

Sweet²³ made the following observations in this situation:

1. Chest pain is absent in these patients.
2. ST-T changes used as index of ischemia is unpredictable in this group of patients.
3. Normalization of ST-T changes during exercise may indicate progressive ischemia and offer a false sense of security.
4. Since the pain occurs at rest or at night, a more physiologic and less hazardous approach would be the continuous use of Holter monitoring.

5. Because of grave prognosis and of above mentioned difficulties, early angiographic studies to obtain a more definitive diagnosis are advised. This is not only useful to define the area of obstruction, but also to demonstrate coronary artery spasm during an episode of pain.

In patients with normal arteriograms in whom spasm is a possible mechanism for ischemia, medical therapy with nitrates and propranolol should be tried initially. Guazzi, et al,²⁴ used long-term propranolol in five patients with this syndrome and were highly successful. In four patients there was the complete disappearance of subjective symptoms and of the electrocardiographic changes during the anginal attacks. In one patient the anginal episodes occurred with less frequency and severity. His findings indicated:

- a. The attacks were not secondary to modifications which acutely increase oxygen consumption of the heart.
- b. No pattern could be given for the success of the drug with regard to blood pressure or left ventricular work.
- c. Cardiac function was improved in each patient after propranolol dosage.

They found these observations were not explained with the commonly suggested mechanism of action of propranolol in angina pectoris. The effects were strictly dose-related and optimal results achieved at individualized dosages.

The effect of drug therapy in the long term medical management of variant angina pectoris has not been adequately evaluated. Prinzmetal¹ reported prevention of attacks with the vasodilator nylidrin hydrochloride.

In the experience of MacAlpin, et al,⁶ medical therapy resulted in partial alleviation of symptoms, implying a better progress than given by Silverman.⁴ MacAlpin⁶ suggested that denervation by adventitial stripping, coupled with coronary artery bypass operation in cases of severe coronary occlusive disease, may alleviate the problem of recurrent spasm at or beyond the site of bypass.

The surgical mortality and long-term results of surgery must be balanced against not performing the procedure. Follow-up information on 15 patients in the literature with variant angina pectoris showed that six of the 15 had not had a myocardial infarction and were alive an average of nine months after diagnosis.⁴ Four pa-

tients had an infarction within three months after diagnosis but survived, and five died an average of 19 months post-diagnosis.

Thus the prognosis in variant angina pectoris appears to be poor, with death or infarction occurring in a high percentage of patients less than a year post-diagnosis. This would justify a vigorous treatment program after diagnosis. Medical and vasodilator therapy has its limitations as discussed; bypass of a localized obstruction with a saphenous vein graft appears to be a sound therapeutic approach.

Gaasch²⁵ reported in 1974 six patients who underwent such a therapeutic program. He also reported 18 additional cases from the literature. Postoperatively only 38% of the entire surgically treated group, however, were free of pain with no evidence of myocardial infarction. There was lack of symptomatic improvement in 29%. Twenty-one percent had symptomatic improvement but myocardial infarction and/or graft occlusion had occurred. Early mortality was 12%. They concluded that surgical results for patients with variant angina were inferior to those in patients with classic angina. In their series and others, bypass surgery in those patients with demonstrated coronary artery spasm had been totally unsuccessful.

Shubrooks, et al,²⁶ in 1975 reported twenty patients with the variant angina syndrome. The angina was frequently associated with arrhythmias. Of the twenty patients, 15 underwent bypass surgery resulting in one noncardiac postoperative death, one perioperative infarction, and relief of pain in all 14 survivors. After a 17-month follow-up period, all survivors are pain free. Their experience was in contrast to Gaasch,²⁵ as they found that most patients with significant fixed coronary lesions do well after coronary bypass surgery.

CONCLUSIONS

1. Prinzmetal's variant angina is a spectrum with variations in coronary artery findings rather than a specific anatomic disease. It is characterized by spontaneous chest pain which occurs at rest and is associated with ST segment elevation.

2. All patients with this syndrome should be studied by coronary arteriograms since no clinical or electrocardiographic manifestations can distinguish those with normal coronary arteries from those with proximal obstructive lesions.

3. Patients with severe proximal obstructive lesions should probably undergo coronary artery bypass surgery.

4. Coronary artery bypass surgery should not be recommended for those with variant angina in the absence of high-grade obstructive lesions.

5. Short and long-term medical therapy includes a short acting vasodilator, such as sublingual isosorbide dinitrate. Propranolol has occasionally been helpful.

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Growth Retardation Syndromes Associated with Hypophosphatemia

Debra Henry, M.D., and M. Joycelyn Elders, M.D.*

INTRODUCTION

The differential diagnosis of growth retardation in children include various metabolic bone diseases associated with chronic hypophosphatemia.

Phosphorus is essential to normal bone, muscle, nervous system, and erythrocyte function. In addition, it is essential for the intermediary metabolism of carbohydrate, protein, fat, and the body's apparatus for generating and storing energy. Deficiency of this metal may be manifest by delirium, seizures, neuropathy, myopathy, or a variety of hematologic abnormalities. The chronic, mild hypophosphatemia associated with metabolic bone disease is rarely fatal, but may cause growth retardation in children.⁹

This review was done because of four children referred for evaluation of severe growth retardation and found to have hypophosphatemia. Each of the children were unusual because of the rarity of their disorder, its inherited nature and the different approaches to therapy.

CASE REPORTS

Case 1: D. J. was an 11-year-old male referred for evaluation of growth retardation. Development was considered within normal limits except for slow growth.

Physical examination revealed a short, somewhat chubby, muscular 11-year-old in no acute distress. BP 140/90, Ht 120 cm, Wt 35.8 kg, upper:lower ratio was 1:1, head circumference 55 cm. Physical examination was otherwise within normal limits. Bone age was approximately 7 years. Bone density and architecture were felt to be normal.

Our initial impression was that this young man had growth hormone deficiency. Arginine-insulin growth hormone stimulation test was normal.

Thyroid function studies were within normal limits. Serum calcium 10.9 mg/dl (normal 9.3 - 10.0 mg/dl), PO_4 1.8 mg/dl (normal 3.0 - 4.5

mg/dl), alkaline phosphatase 264 King-Armstrong units (normal 28 - 100).

He was diagnosed as hypophosphatemic vitamin D-resistant rickets (VDRR) and treated with a high phosphate diet, Neutra-phos, 2 caps t.i.d, (equivalent to 1500 mg elemental phosphorus per day and vitamin D, 10,000 units/day).

On follow-up visit six months after beginning therapy, his height had increased only 1 cm, his serum calcium was 9.7 mg/dl, PO_4 4.3 mg/dl, alkaline phosphatase 198. It was felt that this represented an inadequate response in growth; therefore, his Neutra-phos was increased to 2 caps q.i.d. The patient has tolerated this therapy well and has shown a moderate growth response.

Case 2: N. J. was a 5-year-old male, the prod-



Figure 1.

Photograph of N. J. Note small size and multiple skeletal deformities.

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uct of a FTNSD weighing 6 lbs. 5 ozs. There was nothing unusual about the neonatal period. The patient had a good appetite and intake, and had no real difficulty until one year of age when he caught his right leg in an iron bed and fractured his femur. He was hospitalized for two months. Following discharge the fracture site remained tender and sore to touch. The patient never learned to walk unassisted after the accident, but would pull up on furniture if encouraged. He had poor weight gain, protuberant abdomen, deformities of his chest and extremities, and excessively mobile joints.

The patient had three brothers and two sisters ranging in age from 7 years to 8 months. All were described as being in good health, but were small for age.

The patient was referred for evaluation of growth retardation.

Physical examination revealed an obviously malnourished child with a rather sad passive attitude. BP 104/80, Ht 76 cm (50th percentile for 14 months of age), Wt 12.5 kg, head circumference 48 cm, chest circumference 38 cm, abdominal circumference 42.5 cm. The patient was unable

to stand but could sit without support. He had multiple skeletal deformities including a thoracic scoliosis and kyphosis with lower lumbar lordosis, bell-shaped thorax with easily visible costochondral junctions and subcostal or Harrison's groove. There were bony deformities of the forearms and bowing of the lower extremities (Figure 1).

Laboratory Data: Electrolytes, BUN, and total serum protein were normal. Urinalysis revealed a pH of 7, S.G. 1.029, and generalized, gross aminoaciduria. The calcium was 8 mg%, phosphorus 1.6 mg%, alkaline phosphatase was 168 K-A units. Skull films and long bone series were consistent with rickets (Figures 2, 3).

The patient was begun on a high calcium, high protein diet, vitamin D 2000 units/day, and antibiotics for his pneumonia. Repeat long bone series failed to show any new bone formation after three weeks of therapy, nor was there a change in serum chemistries. The vitamin D was increased to 100,000 units/day following which the patient's urinary excretion of calcium increased, serum alkaline phosphatase decreased, serum phosphorus increased and calcium deposition in bone could be demonstrated after 10 days.



Figure 2.
Roentgenogram of skull of N. J. Note separation of sutures and frontal bossing.

Eight months after discharge from the hospital on 100,000 I.U. of vitamin D daily, he had grown 8 cm and gained 5 kg, was walking normally and skeletal abnormalities were felt to be approaching normal radiographically. Patient was diagnosed as vitamin D-dependent rickets (VDDR). He has done well on 50,000 I.U. of vitamin D daily.

Case 3: J. H. was the product of a FTNSD, weighing 8 lbs. 1 oz. There were no prenatal or perinatal problems. He was an extremely poor feeder and developed polyuria and polydipsia at about 10 months of age. He was hospitalized for dehydration on two occasions at age 10 and 17 months. At each hospitalization the child was noted to have glycosuria and hypokalemia but no other abnormalities.

The family history is significant in that a male sibling died at 10 months of age with severe dehydration and a female sibling died at 13 months with severe dehydration and a serum phosphorus of 1.8. He also had a 6-year-old sister who weighed 33 lbs., was 95 cms in height and com-

plained of photophobia and pain in her lower extremities.

Physical examination revealed a small male in no acute distress. He weighed 8.4 kg (less than 3rd percentile), had a height of 79 cm (between 3rd and 10th percentile), head circumference 47 cm, blood pressure 99/44 mm Hg. He had a malar flush, extremely poor dental development and muscle tone, bilateral tibial valgus, and flaring of the metaphyseal ends of the forearms and knees (Figure 6). The remainder of the physical examination was within normal limits.

Laboratory Data: Na 133, K 3.9, Cl 108, HCO_3 16, Ca 9.8, PO_4 2.6, glucose 116, BUN 11, CR 0.6. Serum osm 272; urine osm 140; alkaline phosphatase 852; UA 3+ glucose, 1+ protein, pH 6.0, SG 1.001.

The admitting diagnosis on this child was rickets, etiology unknown, and a renal tubulopathy. A long bone series with cone down views of the wrists, hands, and knees revealed severe diffuse metaphyseal rachitic changes (Figure 4). Slit lamp examination of the cornea revealed multiple cystine crystals bilaterally. A diagnosis of cystinosis with Fanconi syndrome was made. The child was started on a high phosphate diet, vitamin D 25,000 units p.o. daily, and Shohl's solution (sodium potassium citrate) 10 cc p.o. q.i.d. On this regimen he had one episode of muscle cramps and carpopedal spasm at which time his serum calcium was found to be 7.7. Symptoms resolved quickly after I.V. calcium gluconate. He was discharged from the hospital on Shohl's solution 6 cc p.o. q 6 hours, potassium citrate solution (1 Eq/cc) 6 cc p.o. q 6 hours, calcium gluconate 1 gram p.o. q 6 hours, vitamin D 5,000 I.U. p.o. q.d., Neutra-phos 750 mgs with meals and 500 mg h.s. (=2750 gm of elemental phosphorus/day). Patient has done well on this therapy.

Case 4: J. H. is the 6-year-old sibling of case 3. She was referred for evaluation because she had a history of poor feeding, growth retardation, and repeated hospitalizations for dehydration in her first two years of life. Mother gave a history of polyuria, polydipsia, glycosuria, photophobia and arthralgia.

Physical examination revealed a very small child who had a height of 95.5 cm and weight of 13.7 kg. She was noted to have a frontal bossing, enlarged wrists and knees, but no other findings. Slit lamp examination was performed showing



Figure 3.

Roentgenogram of knees. Note the widened, frayed, and cupped ends of long bones.

multiple cystine crystals in both corneae. Positive laboratory findings at this time: ca 6.7, PO_4 3.9, BUN 42, and alkaline phosphatase 388.

Patient was diagnosed as cystinosis with Fanconi syndrome, the same as J. H. She had radiographic evidence of rickets with evidence of slow growth of her facial bones, flaring, irregularity, and fraying of the metaphysis of long bones, and increased density between the metaphyses and epiphyses of all long bones. She also had early changes of secondary hyperparathyroidism with subperiosteal reabsorption on the radial surface of the index finger, about the wrist, and about the knees. After being started on Shohl's solution, she developed muscular pain and carpal spasm which progressed to tetany. She responded immediately to 10% calcium gluconate I.V.

She was discharged on Shohl's solution (15 cc q.i.d.) along with a high phosphate diet, vitamin D 25,000 units p.o. every day, and oral calcium gluconate 8 gm/day. The patient has done well on this therapy.

DISCUSSION

These four patients presented with growth re-

tardation, hypophosphatemia and rickets. They are unusual but are the kinds of cases which must be considered in patients presenting with this triad of symptoms.

Case 1 represents the unusual presenting symptoms of vitamin D-resistant rickets, case 2 represents vitamin D-dependent rickets, and cases 3 and 4 represent the early and late manifestations of cystinosis.

Some of the hypophosphatemic syndromes associated with rickets and growth retardation are shown in Table 1. We will discuss the clinical manifestations and treatment of each of these disorders.

VITAMIN D-DEFICIENCY IN RICKETS

Vitamin D-deficiency rickets may be the result of a dietary deficit of vitamin D, malabsorption of the vitamin, or interference with its metabolism. Formerly a common cause of growth retardation, nutritional vitamin D-deficiency rickets has been virtually eliminated by the fortification of cow's milk with vitamin D and the special infant formulas containing irradiated ergosterol. Intestinal malabsorption syndromes (with or without steatorrhea) may result in the

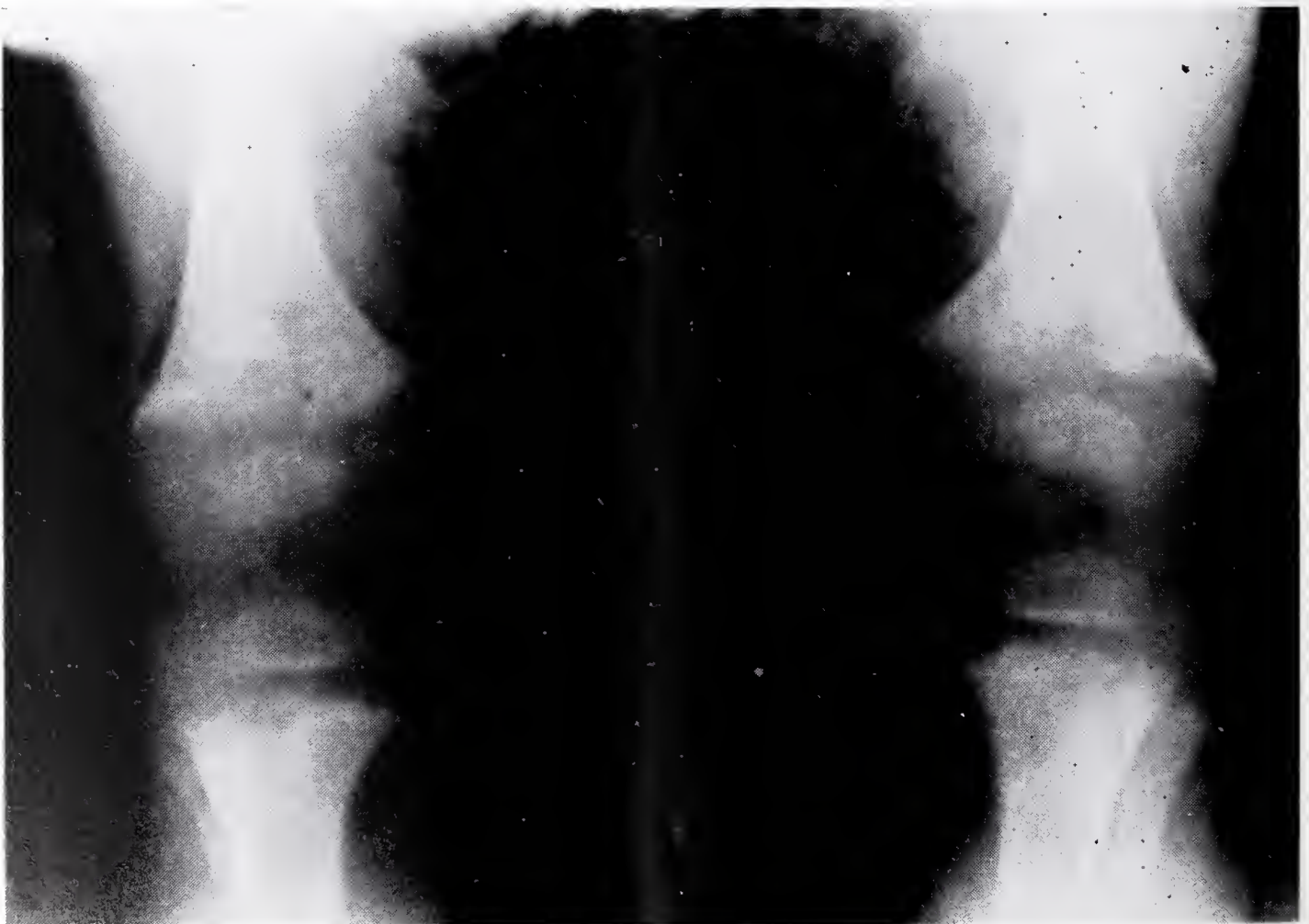


Figure 4.
Roentgenogram of knees of J. H. Note cupping and fraying of distal end of long bones.

loss of vitamin D in the gut, leading to rickets. These syndromes include idiopathic steatorrhea, cystic fibrosis, regional enteritis, biliary obstruction, gluten-sensitive enteropathy, and post-gastrectomy syndrome. Rickets can also result from interference with the metabolism of vitamin D. (Figure 5 illustrates the cycle of vitamin D metabolism). For example, hepatocellular damage, such as that seen with neonatal hepatitis or biliary atresia, can impair the 25-hydroxyla-

TABLE 1
HYPOPHOSPHATEMIC SYNDROMES ASSOCIATED WITH GROWTH RETARDATION

- I. Vitamin D Deficiency Rickets
 - A. Decreased dietary intake of vitamin D
 - B. Absence of sunshine
 - C. Intestinal malabsorption with and without steatorrhea
 - D. Liver disease
 - E. Anticonvulsant therapy
- II. Familial Hypophosphatemic Rickets
 - A. Vitamin D-resistant rickets (VDRR)
 - B. Vitamin D-dependent rickets (VDDR)
- III. Other Disorders With Hypophosphatemia as Primary Defect
 - A. Fanconi syndrome
 1. Cystinosis
 2. Idiopathic
 3. Lowe's syndrome
 4. Tyrosinemia
 - B. Excessive intake of aluminum gels
 - C. Non-endocrine hypophosphatemia producing tumors
- IV. Renal Disorders
 - A. Renal tubular acidosis
 - B. Ureterosigmoidostomy
 - C. Renal osteodystrophy

tion of vitamin D and result in rickets. Chronic anticonvulsant therapy, especially with diphenylhydantoin, phenobarbital, or primidone, is thought to increase the rate of liver microsomal metabolism of 25-hydroxy vitamin D to inactive vitamin D. A normal diet, however, is usually adequate to furnish the required extra 3000 units per week of vitamin D so that only rarely does hypocalcemia or bone disease develop. In rare cases, the lack of exposure to sunshine can decrease the conversion of 7-dehydrocholesterol to cholecalciferol and result in vitamin D deficiency. When this does occur, it is usually in institutionalized patients.⁸

Patients with vitamin D-deficiency present with hypocalcemia, secondary to decreased duodenal calcium absorption, and hypophosphatemia.

In patients with clinical and laboratory manifestations of vitamin D-deficiency rickets (Table 2), the response to small doses (1,000 to 2,000 I.U. per day) of vitamin D is virtually diagnostic as well as therapeutic.

FAMILIAL HYPOPHOSPHATEMIA RICKETS

VDRR is a familial syndrome most commonly transmitted as an x-linked dominant disorder. Because of the usual x-linked dominant inheritance pattern, females are affected more frequently than males, but males usually have more severe bone disease.⁴ However, on occasion, autosomal dominant and recessive transmission may occur as well as sporadic and spontaneous mutations. This genetic defect is thought to result in an abnormality of the renal tubular cells which allows back leak of phosphate from the cell into the lumen resulting in primary hypophosphatemia.

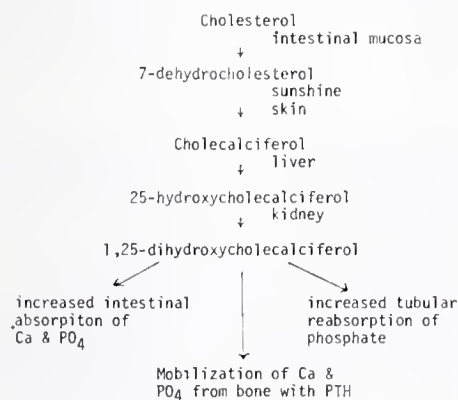
VDRR was initially considered to be a defect in 25-hydroxylation, however, no abnormality in vitamin D metabolism has been demonstrated. It is proposed that there may be a defect in the phosphorus transport mechanism in the intestine. Although some studies support this theory, the evidence is not yet conclusive.⁵

Clinically, the mildest form of this disease is biochemical only, commonly seen in relatives of more severely affected persons. Other than hypophosphatemia and a slight decrease in height, they may not have any clinical manifestations.¹⁷

This disorder nearly always has its onset in childhood. Although the rickets may not be discovered until the child begins to learn to walk,

FIGURE 5

METABOLISM OF VITAMIN D*



Vitamin D-deficiency may result from interference at any step in the metabolic pathway.

*adapted from Harrison, H.E., et al (8)

abnormalities usually date back to the first year of life. These are usually manifest as hypophosphatemia, growth failure, late dentition, deformities of the skull and legs, and dwarfism with particular shortening of the lower segment.⁴ Clinically affected adults may have an unexplainable bony overgrowth at the site of major muscular attachments and around joints causing a limited range of motion. The spine and pelvis do not show evidence of active rickets, in contrast to the vitamin D-deficiency syndrome. A comparison of the clinical and laboratory characteristics of these disorders is shown in Table 2.

Patients with VDRR have x-ray findings which vary from mild to severe rickets. These may be widened shafts with undermineralization and coarse trabeculation or pseudofractures. Only rarely are signs of secondary hyperparathyroidism encountered.

Therapy for patients with VDRR is loading with high doses of phosphorus supplements to elevate the serum phosphorus enough to stimu-

late bone mineralization and growth. This may be done with a high phosphate diet or with oral phosphorus supplements. The best dietary sources of phosphate are in foods such as *milk, cheese, lean meat, eggs, beans, and nuts*. Many oral phosphorus supplements are also available (Table 3). Adults may be started on a total dose equivalent to 1-2 grams of elemental phosphorus/day, children on 1 gram/day, and small infants on .5 gms/day. This load should be given in four divided doses as close to every 6 hours as feasible, since even a few hours of hypophosphatemia may negate the bone healing effects of normal serum phosphate. The total daily dose can be increased until a response in growth occurs or the serum phosphorus rises into a normal range, or diarrhea is encountered. High phosphorus loads can interfere with calcium absorption and cause secondary hyperparathyroidism unless pharmacologic doses of vitamin D are given to maintain calcium absorption. Serum and urinary calcium concentration should be monitored in order to prevent

TABLE 2
DIFFERENTIAL DIAGNOSIS OF RICKETS RESEMBLING VITAMIN D DEFICIENCY

	<i>Vitamin D Deficiency Rickets</i>	<i>Vitamin D Dependent Rickets</i>	<i>Vitamin D Resistant Rickets</i>
Pattern of Inheritance	none	autosomal recessive	X-linked auto- somal dominant
Onset of symptoms	1st year	6 months	1st year
Presentation			
Growth retardation	present	present	present
Rickets	present	present	present
Muscle weakness	present	present	present
Laboratory Manifestations			
Serum Ca ⁺⁺	↓	↓	N
Serum PO ₄	↓	↓	↓
Serum alkaline phosphatase	↑	↑	↑
Aminoaciduria	present	present	absent
Urinary PO ₄	↑	↑	↑
Baseline Intestinal			
Calcium absorption	↓	↓	↓
Treatment with Vitamin D			
Physiologic (400 IU)	complete healing	no response	no response
Pharmacologic (10,000 IU)	complete healing	complete healing	partial healing
Primary Defect	Nutritional deficiency, lack of sunshine, intes- tinal malabsorption, ab- normalities of 25-OH in liver.	abnormality of 1-OH in kidney	backleak of phosphate from renal tubule

the complications of hypercalcemia or hypercalciuria while administering vitamin D.

VITAMIN D-DEPENDENT RICKETS

This is a rare disorder which is inherited as an autosomal recessive trait. This type of rickets resembles vitamin D deficiency but occurs with an adequate intake of vitamin D and exposure to sunshine. This disorder is thought to be caused by an abnormality of the enzyme system responsible for the 1-hydroxylation of 25-OH cholecalciferol in the kidney. It is thought that a much higher concentration of 25-OH cholecalciferol is required by this abnormal enzyme system than in the normal subject. Therefore, administration of physiologic amounts of 25-OH cholecalciferol to these patients does not heal their bone disease.³

These patients usually present with rickets, hypotonia, motor retardation, tetany or seizures, or other signs of hypocalcemia during the first year of life, although there are sporadic cases in which the bone disease develops slowly and may not be manifest until adolescence or later.¹

The laboratory findings are similar to those of vitamin D deficiency states (Table 2). Patients with VDDR and vitamin D-deficient rickets are often hypocalcemic while patients with VDRR have normal calcium concentrations. They also have a generalized aminoaciduria and a mild hypercholermic acidosis. This is not usually observed in VDRR.¹⁵ A catch-up growth spurt is seen after treatment in VDDR, but not in VDRR.

The lack of responsiveness of VDDR to physio-

logic doses of vitamin D differentiates it from vitamin D-deficient rickets. Pharmacologic doses of vitamin D is the treatment for VDDR. Doses in the range of 50,000 I.U. of vitamin D per day will correct the biochemical abnormalities and heal the rickets. There is no need for supplemental calcium or phosphorus.

**OTHER DISORDERS WITH HYPOPHOSPHATEMIA AS PRIMARY DEFECT
THE FANCONI SYNDROME**

The renal Fanconi syndrome variably manifested by glucosuria, phosphaturia, organic and aminoaciduria, and tubular proteinuria frequently causes skeletal abnormalities in children. There are numerous causes of the Fanconi syndrome, but cystinosis is the most common cause in childhood.

Cystinosis is a recessively inherited metabolic disorder characterized by a high intracellular content of free cystine. This results in the abnormal deposition of cystine crystals in the corneae, conjunctivae, bone marrow, lymph nodes, leukocytes, and internal organs.

The three major types of cystinosis are shown in Table 4. The *nephropathic* variety usually presents during the first six months to one year of life with growth retardation secondary to the renal tubular defect in water reabsorption.¹¹ Radiographic and clinical evidences of rickets are usually seen by 2 years of age. These may be manifest as the thickening of the wrists and ankles, rachitic rosary, Harrison's groove, and

**TABLE 3
PHOSPHORUS SUPPLEMENTS***

<i>Preparation</i>	<i>Content</i>	<i>Elemental Phosphorus Equivalent</i>	<i>Recommended Starting Dosage</i>
Neutra-Phos Powder and Capsules (Willen Drug Co.)	dibasic Na+KPO ₄ monobasic Na+KPO ₄	250 mg/capsule or 75 ccs solution	infants, 35-50 ccs sol. q6h children, 75 ccs sol. or 1 capsule q6h adults, 150 ccs or 2 cap. q6h
K-Phos-Neutral Tabs. (Beach Pharmaceuticals)	dibasic NaPO ₄ monobasic KPO ₄ monobasic NaPO ₄	250 mg/tab.	children, 1 tab q6h adults, 2 tabs q6h
Potassium Phosphate Sol. for parenteral administration (Abbott Laboratories)	monobasic KPO ₄ dibasic KPO ₄	96 mg/cc	- - - - -

*Adapted from Kreisberg, R. A.⁹

broadened, frayed epiphyses on long bones. Glomerular damage may also be detected by this time. Most patients with cystinosis have fair skin and blonde hair but tan easily. Mental development is normal.¹²

The ocular manifestations are sufficiently unique and characteristic to form the basis for the diagnosis of this disorder.¹⁸ Photophobia is very often the only presenting visual symptom and may be caused by the glare produced by the corneal and conjunctival refractive crystalline cystine deposits. The generalized patchy depigmentation of the peripheral retina and choroid may be an additional contributing factor in photophobia. The retinal depigmentation may be of special diagnostic value since it can precede the corneal changes by several months. It has been found as early as five weeks of age. The retinal depigmentation is also important since it is usually only present in the nephropathic variety of cystinosis although it is sometimes seen in the intermediate variety as well.

Laboratory manifestations of the renal tubular dysfunction parallel the development of clinical symptoms with glucosuria, organic aciduria, aminoaciduria, and proteinuria. Phosphaturia and decreased intestinal absorption of phosphate lead to hypophosphatemia which not only di-

minishes the calcification of osteoid, but also is associated with enhanced bone resorption. There are, however, isolated reports of the development of osteomalacia prior to the onset of hypophosphatemia. An elevated serum alkaline phosphatase reflects the activity of the rickets. There is increased renal excretion of bicarbonate leading to a metabolic acidosis and an alkaline urine. Serum calcium is usually normal while urinary calcium may be low, normal or high reflecting the degree of acidosis and also the amount of sodium intake and its conservation by the proximal tubule. Profound hypokalemia may be a problem.

As glomerular damage progresses, the BUN and serum creatinine will rise. Microscopic examination of the urine will reveal granular casts and erythrocytes. With a marked decrease in glomerular filtration, total amino acid excretion may be normal, and hyperphosphatemia, hyperkalemia, and secondary hypocalcemia may ensue with more marked acidosis. The correction of the acidosis with alkali without added calcium may result in tetany. Finally, symptoms of uremia and renal failure replace the polyuria and polydipsia and may lead to death before 10 years of age.¹³

The *intermediate* variety of cystinosis usually presents later (in adolescence) and has a more

TABLE 4
CLINICAL CHARACTERISTICS OF THE DIFFERENT FORMS OF CYSTINOSIS*

	<i>NEPHROPATHIC</i>	<i>INTERMEDIATE</i>	<i>BENIGN</i>
Pattern of Inheritance	autosomal recessive	autosomal recessive	autosomal recessive
Onset of Symptoms	6-10 months	18 mo. - 17 yrs.	no symptoms
Presentation			
Growth retardation	present	variable	absent
Rickets	present	variable	absent
Skin pigmentation	fair	variable	normal
Photophobia	present	variable	absent
Corneal and conjunctivae			
Cystine deposits	present	present	present
Retinal depigmentation	present	variable	absent
Fanconi syndrome	present	variable	absent
Renal failure	present in 1st decade	may develop in 2nd decade	absent
Cystine crystals in bone marrow	present	present	present
Prognosis	Death from renal failure in late childhood	variable	normal life expectancy

*Adapted from Schulman and Schneider,¹³ and Goldman, et al.⁶

slowly progressive course in renal insufficiency than does the nephropathic variety. Patients with intermediate cystinosis do have corneal cystine deposits but may or may not have the retinopathy present. Growth is usually delayed but may be normal.⁶

The *benign* variety of cystinosis is usually diagnosed in adulthood after the incidental finding of cystine crystals on an ophthalmologic exam. These patients do not have the characteristic retinopathy or renal damage of the nephropathic variety. They usually have lower concentrations of intracellular cystine.

The renal defect in cystinosis is most likely the result of the large intracellular accumulation of free cystine within the lysosome. The biochemical problem is probably the inhibition of many sulfhydryl-requiring enzymes by the cystine. The identity of the primary abnormal gene product leading to this abnormal accumulation of cystine has yet to be identified.

The *symptomatic management* of patients with cystinosis early in the course of the disease would include correction of the metabolic acidosis and hypokalemia with an alkalinizing mixture containing potassium, such as sodium-potassium citrate. Shohl's solution provides 1 mEq Na and 1 mEq K/cc and is usually administered in a dose of 3-10 mEq/kg or 40-60 cc a day in four divided doses. Vitamin D may be used in doses of 10,000-25,000 units/day to heal rickets. Phosphate salts may also be used to treat the rickets either alone, with a calcium supplement, or in combination with a lower dose of vitamin D. If the acidosis has been corrected with an alkalinizing solution, tetany may result from the simultaneous administration of phosphate and alkali. Therefore, phosphates must be used with caution. If hypocalcemia exists chronically, changes of secondary hyperparathyroidism will become manifest.

For those patients who have progressed to renal failure, dialysis may be a temporizing measure until renal transplantation can be undertaken. In theory, since the primary abnormality leading to renal failure in cystinosis is probably a genetically determined defect of the intracellular environment, normal kidney cells from a transplant donor should not accumulate cystine. The favorable results of transplants seem to justify offering this alternative to patients with cystinosis in renal failure.

EXCESSIVE INTAKE OF ALUMINUM GELS

The ingestion of large doses of aluminum hydroxide or other oral phosphate binders by a normal subject may result in hypophosphatemia and eventually lead to rickets or osteomalacia.¹⁹

NON-ENDOCRINE HYPOPHOSPHATEMIA-PRODUCING TUMORS

A small number of patients have been reported who developed vitamin D-resistant rickets with tumors of mesenchymal origin that elaborated phosphaturic substances resulting in hypophosphatemia. These tumors included small benign sclerosing hemangiomas and non-ossifying fibromas of bone. The humoral phosphaturic substance has not been identified, but it is known that the tubular reabsorption of phosphate markedly increases shortly after the tumor is removed.⁷

RENAL TUBULAR ACIDOSIS

The pathogenesis of rickets and osteomalacia in renal tubular acidosis is not clearly established, although it is usually attributed to hypophosphatemia by the mechanism illustrated in Figure 9. However, patients with idiopathic hypercalcinuria do not develop hypophosphatemia of this degree, nor do they develop skeletal disease. Occasionally, skeletal disease with renal tubular acidosis has been reported in the face of normocalcemia and normophosphatemia implicating chronic acidosis as the etiology.¹⁴

The decreased tubular reabsorption of phosphate in pure forms of the disease seems to be directly related to the acidosis and deficiency of bicarbonate in the glomerular filtrate. Serum phosphate levels will return to normal if the acidosis is corrected (Figure 6).

The skeletal disease associated with this disorder responds to alkali therapy either alone or in combination with small doses of vitamin D (2,000-5,000 I.U./day). High doses of vitamin D should be avoided since they increase the likelihood of nephrocalcinosis.

RENAL OSTEODYSTROPHY

In any work-up for growth failure, renal disease is an important cause which must be excluded. There is a continuum of skeletal disease in patients with severe renal failure that progresses from rickets to azotemic osteitis as the glomerular function decreases.

In chronic renal insufficiency, a lack of functional renal tissue leads to a decrease in the 1-

hydroxylation of vitamin D in the kidney and an effective vitamin D-deficiency state. Coupled with the intrinsic defect in calcium absorption in uremic patients (which is unrelated to the metabolism of vitamin D), this deficiency state leads to hypocalcemia. The resulting secondary hyperparathyroidism is, at first, ineffective in mobilizing calcium and phosphate from bone. The outcome is hypophosphatemic rickets which is indistinguishable radiographically and histologically from vitamin D-deficiency rickets. With progressive renal failure, however, there is a fall in the glomerular filtration rate, a rise in the serum phosphate, increased parathyroid hormone secretion, and a mobilization of mineral from bone. This promotes healing of the rickets or osteomalacia and induces the radiologic and histologic changes of hyperparathyroidism or osteitis fibrosa cystica¹⁰ (Figures 7,8).

Therapy for renal osteodystrophy should include D vitamins. Dihydroxycholesterol seems to be more potent than other D vitamins in patients with renal insufficiency since it has some of the biochemical properties of the 1-hydroxylate vitamin and is not dependent for potency on the kidney's metabolism. Some studies have shown that 0.125 to 0.25 mg of dihydroxycholesterol daily is effective in curing the rickets or osteomalacia in renal failure. In some cases, parathyroidectomy may be necessary before bone mineralization can take place.¹⁰ Aluminum hydroxide gels is used to sequester phosphate in the gut and to reduce the serum phosphate concentration.

SUMMARY

Rickets is an important cause of growth failure in children. The earliest symptoms may be apathy and muscular weakness. Later there may be signs of abdominal distention, irritability, frontal bossing, deformities of the limbs, and failure to grow normally.

Most types of rickets are associated with hypo-

phosphatemia either as the primary defect or as a result of abnormal vitamin D metabolism. A low serum phosphorus concentration may provide an early clue to the diagnosis.

Some of the causes of rickets are vitamin D-deficiency syndromes, familial hypophosphatemic syndromes, Fanconi syndrome associated with cystinosis or other abnormalities, renal failure, or renal tubular acidosis. Further studies to discover the etiology of the rickets should include serum calcium, alkaline phosphatase, urinary amino acid screen, and x-rays of long bones.

Once the etiology of the rickets is identified, successful treatment of the skeletal growth disorder is possible in many cases using vitamin D and/or phosphorus supplements (Table 5).

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FIGURE 7. MECHANISM OF BONE DISEASE IN RENAL RICKETS

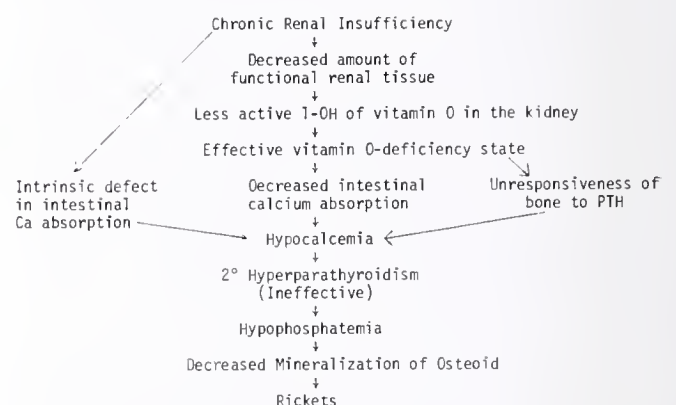


FIGURE 8.

MECHANISM OF BONE DISEASE IN RENAL OSTEITIS

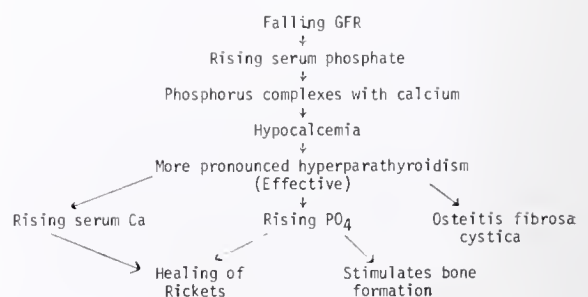
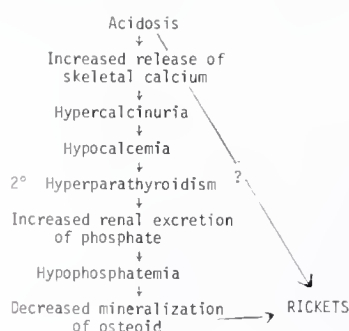


FIGURE 6. MECHANISM OF BONE DISEASE IN RENAL TUBULAR ACIDOSIS



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TABLE 5
TREATMENT OF DIFFERENT HYPOPHOSPHATEMIC DISORDERS

Disorder	THERAPY			
	Vitamin D	Phosphorus Supplement	Alkali	Other
Vitamin D Deficiency	400-2000 IU/day Cholecalciferol or 25-OH cholecalciferol	Usually not required	Not required	Good nutrition
VDRR	25,000-50,000 IU/day	0.25-0.5 gms q6h	Not required	High PO ₄ diet
VDDR	10,000-50,000 IU/day Cholecalciferol	Usually not required	Not required	none
Cystinosis — early — late	10,000-25,000 IU/day 0.125-250 mg dihydro- tachysterol	0.25 gm q6h none	Shohl's sol. (Na, K+ citrate 5-10 mEq/kg/day)	Dialysis Renal Transplant
Renal Rickets	1,000-2,000 IU/day	none	Shohl's sol.	none
Renal Osteodystrophy — early	0.125-0.250 mg/day Dihydrotachysterol	none	Alkali without K+	none
— late	0.125-0.250 mg/day Dihydrotachysterol	none	Alkali without K+	Subtotal parathyroidectomy Phosphate precipitants

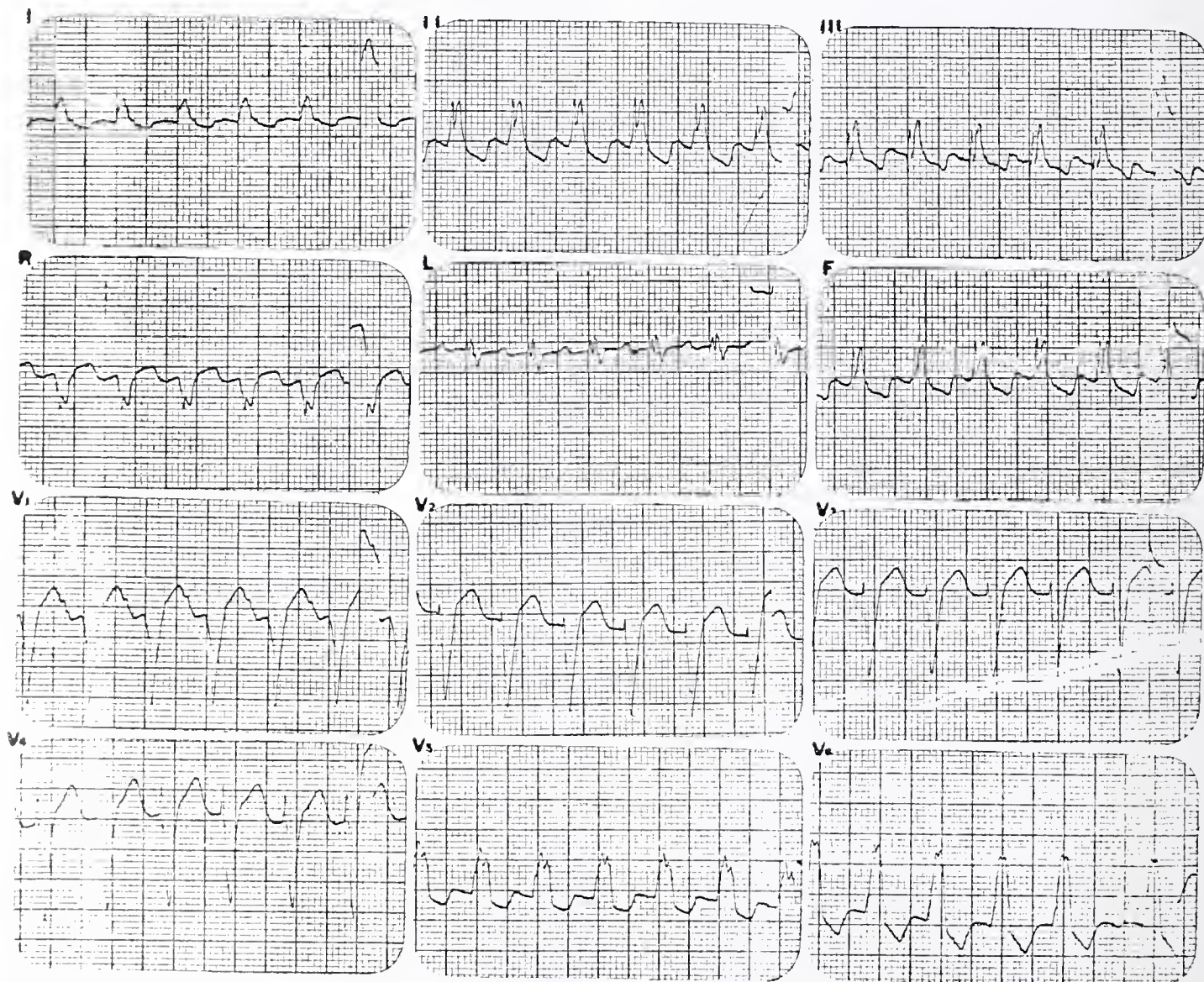
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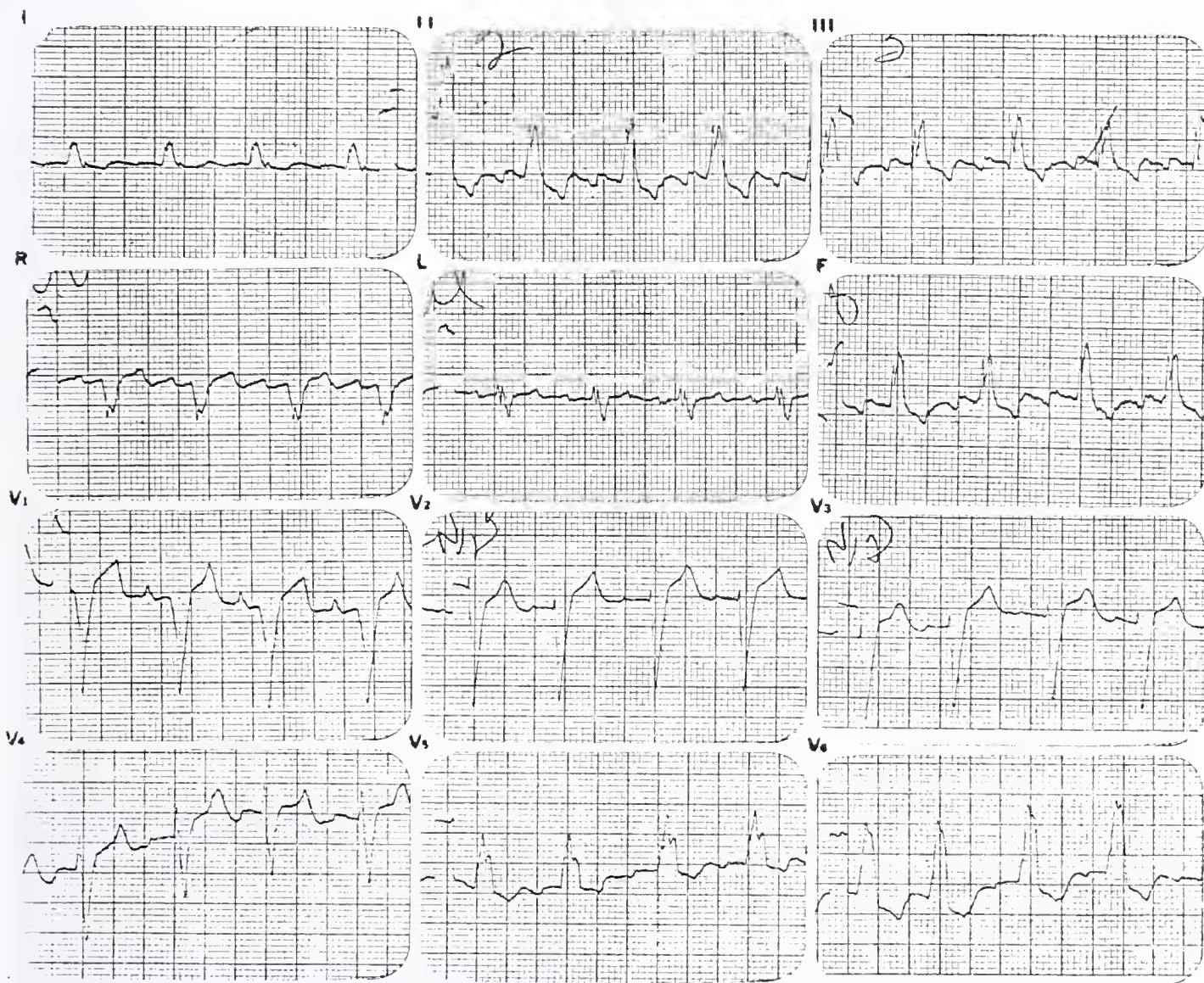
The Department of Cardiology, University of Arkansas College of Medicine
(See Answer on Page 508)

HISTORY: This is a 60-year-old female who presented after she had developed shortness of breath, paroxysmal nocturnal dyspnea, orthopnea, and swelling of the lower extremities over the course of two weeks. She denied chest pain. She had a history of "fast heart beats" approximately one year ago which resolved after her physician placed her on Digoxin. She had continued that medication until her presentation. Physical exam revealed her to be alert and in moderate respiratory distress with a pulse of 150, respirations of 30, and blood pressure of 180/80. She had distended jugular veins, bilateral basilar rales, an S3 gallop, and 2+ pretibial edema. Her chest film demonstrated marked cardiomegaly and engorged pulmonary vessels. Below is her presenting ECG.



What mechanism does it demonstrate? (1) Junctional tachycardia; (2) Ventricular tachycardia; (3) Paroxysmal atrial tachycardia; (4) Atrial flutter with 2:1 AV conduction; (5) Atrial fibrillation with aberrant conduction.

Following the previous ECG, her physician instituted carotid massage which resulted in the following trace:



How would you interpret this ECG?

Tommy L. Love, Jr., M.D.

Fellow

Division of Cardiology

University of Arkansas College of Medicine

Little Rock, Arkansas 72201

Office Orthopaedics

Heel Pain

R. Barry Sorrells, M.D.*

We have all heard the statement "When your feet hurt, you hurt all over." How true this is! Pain will arise in many areas of the foot: the great toe, the lesser toes, the metatarsal interspaces, the longitudinal arch, the ball of the foot, and the heel. The last, however, constitutes one of the most commonly encountered foot pain complaints in the practice of Office Orthopaedics. Heel pain can make one "hurt all over."

Pain in the heel may be due to calcaneal spur, epiphysitis, retrocalcaneal bursitis, fracture, neoplasms of the tendoachilles, infraction of the os trigonum, and primary or metastatic tumor of the os calcis. The first three of these causes of heel pain will be discussed as they are the most commonly encountered.

CALCANEAL SPUR

Heel spur is an osteophytic outgrowth just anterior to the tuberosity of the calcaneus, extending across its entire width. The apex of the spur is embedded in the plantar fascia, directly anterior to its origin. The condition may exist without symptom; it may be painful, and occasionally may become disabling to the patient.

The heel spur which is easily visualized on the lateral roentgenogram of the os calcis may vary greatly in size from a very small proliferation to a massive exostosis (Figure 1). The size of the lesion is not necessarily related to the degree of symptoms experienced by the patient. Not uncommonly, a very large heel spur will be visualized on an X-ray of the foot when the patient has no symptoms in this area at all. Likewise, the patient virtually crippled by heel pain secondary

to calcaneal spur will sometimes evidence only a very small exostosis on X-ray.

Etiology

The etiology of heel spurs has been attributed to infection, collagen disease, an hereditary factor, and trauma. None of these factors invariably predisposes to development of the heel spur.

Development of the heel spur is probably secondary to mechanical factors. The plantar fascia arises from the anterior lip of the tuberosity of the calcaneus over an area of about two to three centimeters in width. From this origin it spreads out over the entire plantar surface of the foot and is inserted under the fascial plane of the five metatarsal heads, measuring at that point about eight centimeters in width in the adult foot. The plantar fascia functions as a bow string for the



Figure 1.
Os calcis spur.

*Little Rock Orthopedic Clinic, P. O. Box 5270, Little Rock, Arkansas 72205.

entire plantar surface of the foot; thus any excess strain on the longitudinal arch exerts a maximum pull or strain at the acute angle of its origin. Obesity, postural deformities, improper footwear, and excessive walking or running may precipitate development of the heel spur with proliferative bone change at the origin of the fascia, ultimately forming the calcaneal spur.

Diagnosis

The principal symptom is severe pain in the entire plantar surface of the heel aggravated by weight bearing. On palpation, the entire plantar surface of the heel is tender; but the point of maximum tenderness is elicited just anterior to the calcaneal tuberosity. This is a classical "trigger point" and single finger pressure by the examiner on the plantar surface of the foot in this area will produce a diagnostic response on the part of the patient. As previously mentioned, a lateral X-ray of the heel will usually demonstrate a heel spur in this area; the size of the spur is subject to great variation.

Treatment

The asymptomatic heel spur need not be treated. The symptomatic spur will usually respond nicely to conservative treatment. Mechanical measures such as the addition of a foam pad in the heel of the shoe with a cut-out centrally beneath the area of the spur will relieve pressure beneath the exostosis and "rest" the inflamed plantar fascia origin (Figure 2). Anti-inflammatory oral medication may be beneficial. Most symptomatic patients with heel spur will

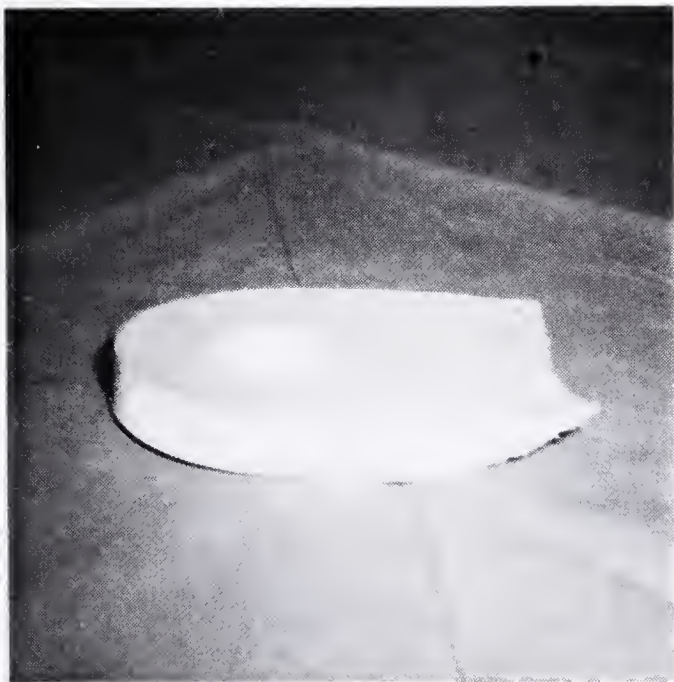


Figure 2.
Heel pad.

respond dramatically to cortisone injection. While many of the steroid preparations are available, the author prefers 1 cc of betamethasone sodium phosphate, NF (Celestone Soluspan®) mixed with about 3 cc of 1% Lidocaine (Xylocaine®). The solutions are purposely mixed together for diagnostic as well as therapeutic purposes. That is, if the patient experiences an immediate improvement symptomatically following injection, obviously due to the anesthetic, this indicates that the diagnosis is correct and inasmuch as the cortisone is mixed with the Lidocaine, it insures that the anti-inflammatory medication has been delivered to the proper site. Prior to injection the foot is meticulously cleaned and thoroughly prepared with an iodophor scrub and solution. A 22 gauge needle is then inserted directly through the plantar surface of the heel into the area of maximum tenderness, usually coinciding directly with the spur which is visualized by X-ray. The needle is inserted until resistance from bone is felt and an area of approximately 3 cm in all directions is "fanned out" assuring adequate distribution of the solution. Following withdrawal of the needle, firm pressure is held over the puncture site for about one minute inasmuch as the tissue in this area is quite vascular and subject to bleeding. After three or four minutes the patient is asked to stand and not infrequently will report a complete "cure" of his symptoms. He is advised that post-injection "flare" will probably occur within two to three hours following absorption of the anesthetic but that he should expect gradual resolution of symptoms within two to three days, hopefully and frequently permanent.

Most patients will respond to the measures noted. Occasionally it will be necessary to reinject the patient with recurrent symptoms. The author prefers an interim of at least two months and injections not to exceed three to four times. For the rare patient unresponsive to these conservative measures, surgery may be indicated and numerous surgical procedures for removal of the bone spur and release of the inflamed fascia have been described. Recently neurotomy of the medial calcaneal nerve has been described as a beneficial procedure.

EPIPHYSITIS OF THE CALCANEUS

The epiphysis of the heel which exists on the posterior aspect of the os calcis is unique in being subject to both direct and indirect trauma. It is

a pressure type of epiphysis because of the weight bearing function of the heel and the pressure exerted by the counter of the shoe. The strong pull of the calf muscles inserted into it also makes a traction type of epiphysis. This predisposes the epiphysis which is commonly called an apophysis to the causative factors of Legg-Calvé-Perthes disease, which is due to pressure and Osgood-Schlatter's disease, which is due to traction.

Etiology

The calcaneal epiphysis is the only bone in the body to assume the entire body weight prior to complete ossification. It is also the only bone in the body with tremendous traction exerted on it (from the calf muscles) without counter traction from opposing muscle groups. The strong traction from the calf muscles pulls against the epiphysis, but no other muscles insert into the os calcis. Because of these forces exerted, an inflammatory process of the epiphysis, the epiphyseal plate, and the posterior portion of the body of the calcaneus may ensue. The condition is usually unilateral but may be bilateral. The onset of symptoms is gradual, beginning with slight pain at the back of the heel. The patient walks with a limp and finds it uncomfortable to complete the step. Pain may be experienced along the achilles tendon or in the calf muscles. Children may walk on their toes in an attempt to relax the pull of the achilles tendon.

Diagnosis

The disease occurs mostly in boys between the ages of 8 and 12 years, or during the period of their greatest growth. An injury previously incurred may or may not be elicited in the history, although the patient will usually admit to excessive sports participation. The condition commonly occurs following a change in shoe wear associated with sports such as track, baseball, basketball, tennis, football and other sports using a shoe with a very low heel. The patient who is accustomed to elevation of the heel from his routine footwear changes to the athletic shoe with a low heel thus effectively "stretching" the achilles tendon and increasing traction on the insertion at the epiphysis.

The posterior part of the heel is tender to palpation and there may be some thickening at the insertion of the achilles tendon. Dorsiflexion of the foot is limited; the heel hurts on forced passive dorsiflexion.

X-ray demonstrates convincing diagnostic features. On the lateral view of the foot the epiphysis of the heel may appear fluffy, moth eaten, somewhat flattened, or partly fragmented according to the stage of the disease. The adjacent posterior surface of the calcaneus is irregular. Areas of rarefaction alternating with areas of increased density give this region a "punched out" roentgenographic appearance. Finally the epiphyseal line appears cloudy and abnormally irregular.

Treatment

In mild cases, use of a sponge heel elevation within the shoe, restricting vigorous running, use of elastic strapping and elevation of the heel with proper footwear will normally suffice. In resistant cases the condition may be alleviated by the application of a plaster walking cast with the foot held in slight equinus position to relax the tension on the calf muscles. The cast should be worn for six weeks and thereafter a shoe with an elevated heel may be employed. Again, steroid injection may be beneficial. The condition is self limiting and will disappear at the age of seventeen or eighteen years when the epiphysis becomes completely united.

RETROCALCANEAL BURSITIS

The only consistent anatomic bursa of the foot is situated between the posterior superior surface of the calcaneus and the tendoachilles. Inflammation of this bursa will produce a condition usually acute but possibly becoming chronic.

Etiology

Friction and pressure of the shoe counter is usually causative and is followed by secondary inflammation. The bursa may become infected by hematogenous spread from infection elsewhere in the body. The bursa is enclosed in a limited area and is intolerant to pressure and swelling.

Diagnosis

Swelling and inflammation above the posterior superior portion of the calcaneus, painfulness, and tenderness to touch may be acute and are diagnostic. Pain is increased on dorsiflexion of the foot either passively or actively. Dorsiflexion increases the pressure from the tendoachilles against the posterior border of the calcaneus and increases pressure within the already distended and inflamed bursa. X-rays are usually not helpful.

Treatment

In the acute stage treatment is directed toward conservative measures. Elevation of shoe heel, use of a foam heel pad, and anti-inflammatory oral medication will be useful. If one is sure there is no infection present the bursa may be aspirated under sterile conditions and injected with a small amount of cortisone and Lidocaine. If infection is present antibiotics are usually indicated. Heat, elevation, and rest are recommended. Occasionally incision and drainage may

be necessary. In chronic or recurrent cases, the bursa needs to be excised. The "dead space" created by removal of the bursa must be occluded lest hematoma develop in the space.

As mentioned, heel pain may result from numerous causes. Three of the most common causes have been discussed. Conservative measures of Office Orthopaedics will usually result in symptomatic improvement and frequently complete resolution of pain in the majority of these patients.





The 1978 Arkansas Certificate of Live Birth and Death

Henry C. Robinson, Jr.,* and Janice Sanders**

Arkansas Statute 82-512 directs the Division of Vital Statistics to include in its "forms" as a minimum the items recommended by the Federal agency responsible for national vital statistics. To comply with this directive, the National Standard Certificates of Live Birth and Death for 1978 were adopted for use in Arkansas.

On July 28, 1977, the State Board of Health amended Sections 4.2 and 4.5 of Regulation 4 of the *Rules and Regulations Pertaining to Vital Statistics*, as promulgated under authority of Act 471 of 1965. These sections, which concern the items required on the birth and death certificates, were amended so that certain items could be added to the 1978 forms that had been previously adopted for use on the old certificate forms. These items included the typing of the mother's blood, syphilis blood test, the use of a prophylactic drug in the baby's eyes, whether or not a phenylketonuria test was made, if there was an operation for delivery and, on the death certificate, the embalmer's signature and license number and whether or not death occurred within the city limits.

Immediately following passage of the amendments and the printing of the new birth and death certificates, notification was made to all hospitals, funeral homes and health professionals who participate in the generation of the birth and death certificates.

The new birth and death certificates were implemented on January 1, 1978.

All items that appear on the new certificate and did not appear on the old certificate are listed below with justification for the items.

*State Registrar, Director, Division of Vital Records, Arkansas Department of Health, 4815 West Markham, Little Rock, Arkansas 72205.

**Administrative Assistant, Division of Vital Records, Arkansas State Department of Health.

CERTIFICATE OF LIVE BIRTH

(1) *Education of Mother and Father*

This is the only socioeconomic indicator on the birth certificate. Although, there are other measures of socioeconomic status, education is easily classifiable and has proven to be obtainable through the birth certificate mechanism. The education of mother and father has been substituted for previous items on occupation and industry. This information will only be inserted in the confidential section of the birth certificate. Certified copies requested of the birth certificate will not reflect any information in the confidential section.

(2) *Prenatal Care*

This information is sought to determine the relationship of prenatal care to the health of the child at birth. It is commonly felt that if care is begun early, the physician's instructions on nutrition, drug use, etc., could have a major impact on the health of the fetus. This information is useful in planning for the location of and evaluating the utilization of prenatal care programs.

(3) **Apgar Score*

The Apgar score is felt to be an excellent means to evaluating the health of the infant.

*The Apgar score is a summary measure of the infant's condition which reflects heart rate, respiration, muscle tone, reflex activity and skin coloration. One and five minutes Apgar score distributions are presented for a variety of social and demographic factors, maternal health factors and infant health factors. The Apgar score ranges from low of 0 to a high of 10. While the Apgar score has been shown to be of limited value for long-term prognosis, it has been found to have greater importance in perinatology relative to immediate outcome.²

The 1978 revision of the U. S. Standard Certificate of Live Birth recommends, for the first time, collection of one and five minute Apgar scores. With the adoption of these items further explanation of Apgar score relationship will become possible.

*Article on Apgar score can be obtained from:

Dr. Paul S. Placek, National Center for Health Statistics, 5600 Fisher Lane - Room 9A-41, Rockville, Maryland 20852.

The Relationship of Social and Demographic, Maternal Health and Infant Health Factor to one and five minute Apgar scores.

It has been shown that there are correlations between apgar scores and other significant health variables.

- (4) *Date of Last Birth and Other Termination*

These items are used to compute the intervals between live birth and between pregnancies in studying child spacing. They are also important in determining whether there are health problems associated with close spacing and with the outcome of the previous pregnancy (whether or not it was a live birth).
- (5) *Date Last Normal Menses Began*

This item is used to determine the length of gestation (with the date of birth), which is related to infant morbidity and mortality. It is associated with birth weight in determining the maturity of the child at birth and thus is important in medical research.

- (6) *Spanish Origin or Descent*

This item did not originally appear on the National Standard Certificate of Live Birth. After the President of the U. S. signed P.L. 94-311, the National Center for Health Statistics (DHEW) strongly encouraged our agency to identify persons of Hispanic origin on both birth and death certificates.

CERTIFICATE OF DEATH

- (1) *If Hospital or Institution Indicate Dead on Arrival, Outpatient/Emergency Room, Inpatient*

This item allows the institution to specify the status of the decedent at the institution at the time of death. It will provide a better measure of the mortality rate for an institution.
- (2) *Spanish Origin*

Refer to Spanish origin above.
- (3) *Was decedent ever in the U. S. Armed Forces*

TYPE OR PRINT IN PERMANENT INK FOR INSTRUCTIONS SEE HANDBOOK

CHILD

CERTIFIER

MOTHER

FATHER

ARKANSAS DEPARTMENT OF HEALTH
Division of Vital Records
CERTIFICATE OF LIVE BIRTH

CHILD—NAME FIRST MIDDLE LAST			SEX	DATE OF BIRTH (Mo. Day Yr.)		HOUR
1 HOSPITAL—NAME (If not in hospital give street and number)			2 CITY, TOWN OR LOCATION OF BIRTH	3a COUNTY OF BIRTH		3b. M
4a I CERTIFY THAT THE STATED INFORMATION CONCERNING THIS CHILD IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF			4b DATE SIGNED (Mo., Day Yr.)		4c NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER (Type or print)	
5a (Signature) CERTIFIER NAME AND TITLE (Type or print)			5b MAILING ADDRESS (Street or R.F.D. No., City or Town, State, Zip)		5c	
5d REGISTRAR			5e DATE RECEIVED BY REGISTRAR (Month, Day, Year)			
6a (Signature) MOTHER—NAME FIRST MIDDLE LAST (MAIDEN NAME)			7a AGE (At time of this birth)		7c STATE OF BIRTH (If not in U.S.A. name country)	
7a RESIDENCE—STATE		COUNTY	CITY, TOWN OR LOCATION		STREET AND NUMBER OR RESIDENCE	
8a		8b	8c		8d INSIDE CITY LIMITS (Specify yes or no)	
8a MOTHER'S MAILING ADDRESS—If same as above enter Zip Code only			SPANISH ORIGIN OR DESCENT (MOTHER) 1 <input type="checkbox"/> NON-SPANISH 3 <input type="checkbox"/> PUERTO RICAN 5 <input type="checkbox"/> CENTRAL OR SO. AMERICAN 2 <input type="checkbox"/> MEXICAN 4 <input type="checkbox"/> CUBAN 6 <input type="checkbox"/> OTHER OR UNKNOWN SPANISH			
9 FATHER—NAME FIRST MIDDLE LAST			10a AGE (At time of this birth)		10c STATE OF BIRTH (If not in U.S.A. name country)	
10a I certify that the personal information provided on this certificate is correct to the best of my knowledge and belief (Signature of Parent or 11a other informant)			10b RELATION TO CHILD		SPANISH ORIGIN OR DESCENT (FATHER) 1 <input type="checkbox"/> NON-SPANISH 3 <input type="checkbox"/> PUERTO RICAN 5 <input type="checkbox"/> CENTRAL OR SO. AMERICAN 2 <input type="checkbox"/> MEXICAN 4 <input type="checkbox"/> CUBAN 6 <input type="checkbox"/> OTHER OR UNKNOWN SPANISH	
11a			11b		10d	

INFORMATION FOR MEDICAL AND HEALTH USE ONLY

12 RACE—MOTHER (e.g. White, Black, American Indian, etc.) (Specify)		13 RACE—FATHER (e.g. White, Black, American Indian, etc.) (Specify)		14 BIRTH WEIGHT		15a THIS BIRTH—Single, twin, triplet, etc. (Specify)		15b IF NOT SINGLE BIRTH—Born first, second, third, etc. (Specify)		16 IS MOTHER MARRIED? (Specify Yes or No)	
17a Now Living 17b Now dead		17d Before 20 weeks 17e After 20 weeks		18 ELEMENTARY OR SECONDARY (0-12)		19a College (1-4 or 5+)		19b ELEMENTARY OR SECONDARY (0-12)		19c College (1-4 or 5+)	
Number _____ None <input type="checkbox"/>		Number _____ None <input type="checkbox"/>		DATE LAST NORMAL MENSTRUATION (Mo., Day Yr.)		MONTH OF PREGNANCY PRE-NATAL CARE BEGAN First, second, etc., (Specify)		20a PRENATAL VISITS Total number (If none so state)		20b APGAR SCORE 1 min. 5 min.	
DATE OF LAST LIVE BIRTH (Month, Year)		DATE OF LAST OTHER TERMINATION (as indicated in or above) (Mo., Yr.)		21a COMPLICATIONS OF PREGNANCY (Describe or write "none")		21b CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THE PREGNANCY		22a		22b	
17c COMPLICATIONS OF LABOR AND/OR DELIVERY (Describe or write "none")		INDUCED Yes <input type="checkbox"/> No <input type="checkbox"/>		23 CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (Describe or write "none")		24 OPERATION FOR DELIVERY TYPE		25		26	
25 MOTHER'S BLOOD TYPE RH-TYPE YES <input type="checkbox"/> NO <input type="checkbox"/> SENSITIZATION YES <input type="checkbox"/> NO <input type="checkbox"/>		26 PROPHYLACTIC DRUG IN BABY EYES YES <input type="checkbox"/> NO <input type="checkbox"/>		IF YES STATE DRUG		27 PHENYLKETONURIA TEST		28		29	
28 WAS MOTHER'S BLOOD TESTED FOR SYPHILIS? YES <input type="checkbox"/> NO <input type="checkbox"/>		29		30		30		30		30	

(Veteran Status). This item is included primarily at the request of Veteran groups. It could be useful to the family in obtaining Veteran's benefits.

Certification Information

These are legal items attesting that the fact concerning the death are correct. The time of death has not always been completed on the old forms by the certifier. The only space on this new document for hour of death is located in the certifier section. To avoid

queries, all items under the certifier section should be complete. The time of death can be important in inheritance cases.

Justification for the above listed items comes from the National Center for Health Statistics (DHEW).

The State Health Department, Division of Vital Records has made and is still in the process of making presentations over the state regarding the birth and death certificates. All comments and inquiries are welcome.

ARKANSAS DEPARTMENT OF HEALTH Division of Vital Records CERTIFICATE OF DEATH

TYPE OR PRINT IN PERMANENT INK FOR INSTRUCTIONS SEE HANDBOOK	DECEDENT-NAME FIRST MIDDLE LAST			SEX	DATE OF DEATH (Mo. Day, Yr.)	
	1 RACE-(e.g. White, Black, American Indian, Etc.) (Specify)		SPANISH ORIGIN OR DESCENT 1 <input type="checkbox"/> Non-Spanish 3 <input type="checkbox"/> Puerto Rican		5 <input type="checkbox"/> Central or So. American 6 <input type="checkbox"/> Other or Unknown Spanish	
	4a. COUNTY OF DEATH		4b. 2 <input type="checkbox"/> Mexican 4 <input type="checkbox"/> Cuban		5a. AGE-Last Birthday (Yrs.) UNDER 1 YEAR MOS DAYS 5b. UNDER 1 DAY HOURS MINS 5c.	
DECEDENT	7a. STATE OF BIRTH (If not in U.S.A. name country)		7b. CITIZEN OF WHAT COUNTRY		7c. HOSPITAL OR OTHER INSTITUTION-Name (If not in either, give street and number)	
	8 SOCIAL SECURITY NUMBER		9		10	
	13 RESIDENCE-STATE		14a. CITY TOWN OR LOCATION		14b. STREET AND NUMBER	
IF DEATH OCCURRED IN INSTITUTION SEE HANDBOOK REGARDING COMPLETION OF RESIDENCE ITEMS	15a. FATHER-NAME FIRST MIDDLE LAST		15b. MOTHER-MAIDEN NAME FIRST MIDDLE LAST		15c. DATE OF BIRTH (Mo. Day, Yr.)	
	16 INFORMANT-NAME (Type or Print)		17 MAILING ADDRESS		18a. BURIAL, CREMATION, REMOVAL, OTHER (Specify)	
	18b. CEMETERY OR CREMATORY-NAME		18c. LOCATION		18d. CITY OR TOWN	
DISPOSITION	19a. DATE (Mo. Day, Yr.)		19b. NAME OF FUNERAL HOME		19c. ADDRESS OF FUNERAL HOME	
	20a. EMBALMER-Signature		20b. LICENSE NUMBER		20c. DATE RECEIVED BY REGISTRAR (Mo., Day, Yr.)	
	21a. TO THE BEST OF MY KNOWLEDGE, DEATH OCCURRED AT THE TIME, DATE AND PLACE AND DUE TO THE CAUSE(S) STATED (Signature and Title) DATE SIGNED (Mo., Day, Yr.)		21b. HOUR OF DEATH		21c. ON THE BASIS OF EXAMINATION AND/OR INVESTIGATION, IN MY OPINION DEATH OCCURRED AT THE TIME, DATE AND PLACE AND DUE TO THE CAUSE(S) STATED (Signature and Title) DATE SIGNED (Mo., Day, Yr.)	
CERTIFIER	22a. NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print)		22b. PRONOUNCED DEAD (Mo. Day, Yr.)		22c. PRONOUNCED DEAD (Hour)	
	22d. NAME AND ADDRESS OF CERTIFIER (PHYSICIAN, MEDICAL EXAMINER OR CORONER) (Type or Print)		22e. ON		22f. AT	
	22g. M		22h. M		22i. M	
CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST	23. IMMEDIATE CAUSE		24. ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)		Interval between onset and death	
	(a) DUE TO, OR AS A CONSEQUENCE OF		(b) DUE TO, OR AS A CONSEQUENCE OF		Interval between onset and death	
	(c) DUE TO, OR AS A CONSEQUENCE OF		(c) OTHER SIGNIFICANT CONDITIONS: Conditions contributing to death but not related to cause in PART I (a)		Interval between onset and death	
CAUSE OF DEATH	25. ACC., SUICIDE, HOM., UNDET., OR PENDING INVEST. (Specify)		26. DATE OF INJURY (Mo., Day, Yr.)		27. HOUR OF INJURY	
	28a. INJURY AT WORK (Specify Yes or No)		28b. PLACE OF INJURY-At home, farm, street, factory, office building, etc. (Specify)		28c. DESCRIBE HOW INJURY OCCURRED	
	28d. LOCATION		28e. STREET OR R.F.D. NO.		28f. CITY OR TOWN	

VR-2

SM - 1-78-ADC-CDC





Sports Injuries to the Hand

James F. Moore, M.D.*

INTRODUCTION

Sports injuries to the hand are common and, for the most part, not severe enough to keep the athlete out of action for long. Because the athlete can still run, often the hand is simply padded or taped and he is allowed to continue to participate — of course depending on the sport and his position on the team. In our enthusiasm to return the athlete to action, we as the treating physician or team physician must not neglect to make a thorough evaluation of the injury and recommend the proper treatment.

The purpose of this paper is to discuss the more common athletic injuries of the hand with emphasis on the problem injuries. The recommendations for treatment may not be followed at times in the college athlete who is in many ways a professional, but in my opinion, should be followed in the junior high or high school athlete.

CONTUSIONS AND ABRASIONS

It is common in football to have a crush injury to the hand when a player's hand is stepped on or the arm is caught in the bottom of a pile-up. The hand should first be examined for evidence of a fracture with crepitus or deformity. If it appears to be just a contusion, then a hand

pad can be applied and he can continue to play. After the game, the hand should have a compressive dressing applied and ice used for the first twenty-four hours. Following the game, any abrasions should be thoroughly cleaned and disinfectant applied. If a contused hand does not rapidly improve, or if there is doubt about a fracture, then an x-ray should be obtained.

FRACTURES

Probably the most common fracture seen in athletics is the metacarpal fracture — particularly the metacarpal neck fracture — or so-called "Boxer's Fracture" (Figure 1). If there is minimal



Figure 1.
Boxer's fracture showing small amount of angulation at neck of 5th metacarpal.

*Orthopaedic-Neurological Clinic, P. O. Drawer 1608, Fayetteville, Arkansas 72701.

angulation, particularly of the 5th metacarpal, no reduction is needed. If the 2nd or 3rd metacarpal is angulated more than 15° , or the 4th and 5th metacarpals are angulated more than 30° , then reduction should be performed.¹ I recommend a short arm cast with a volar aluminum splint incorporated into the cast to run along the flexor surface of the finger with the finger taped to the splint in a slightly flexed position (Figure 2). Immobilization can be discontinued after three weeks and motion started. Some college athletes are treated by taping the finger to the adjacent finger without use of a cast, and early motion started. They can play with a hand pad over the taped fingers.

Non-displaced metacarpal shaft fractures or phalanges fractures can be treated in the same manner as above with cast and incorporated splint. If a middle or distal phalanx fracture is non-displaced it can be adequately treated in simply a padded aluminum splint along the flexor surface with slight flexion. As always, post-reduction AP and lateral x-rays should be obtained.

The problem fractures include displaced fractures which extend into the joint, displaced metacarpal or phalangeal fractures, and these should be referred to an orthopaedic surgeon for treatment.

Of special concern is the Bennett's fracture (Figure 3), which is a fracture-dislocation, with the fracture extending through the base of the thumb metacarpal into the metacarpotrapezial joint. When displaced (Figure 4) this is an inherently unstable fracture requiring an open reduction internal fixation (Figure 5).² If the fracture is not reduced, then an irregular joint

surface is created, causing wear and early degenerative arthritis of that joint. These should be referred to an orthopaedic surgeon for treatment.

DISLOCATIONS

The most common dislocation seen in athletic competition is probably the proximal interphalangeal joint dislocation. These are usually re-

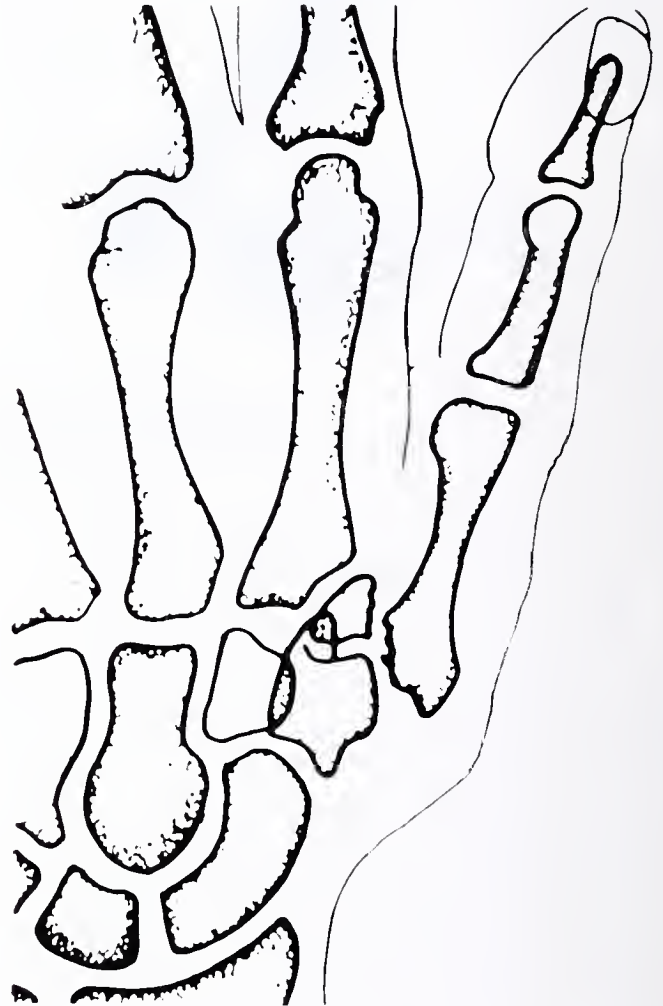


Figure 3.

Diagram of Bennett's fracture showing the fracture through the base of the thumb metacarpal. One fragment is left in place and the rest of the metacarpal is pulled proximal by the tendons attached to it.

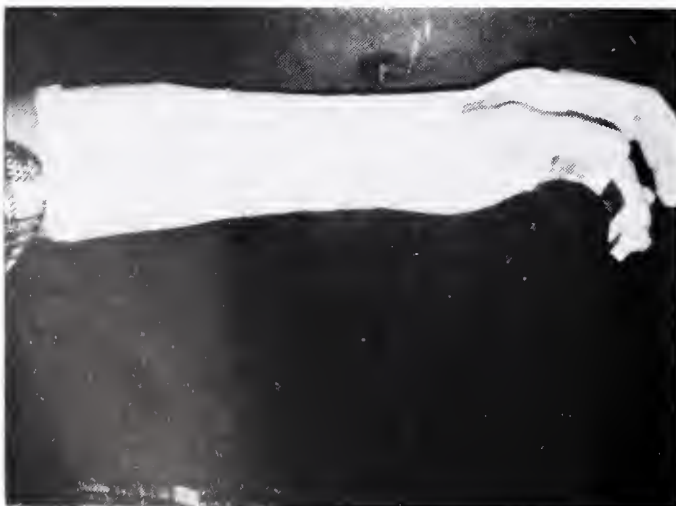


Figure 2.

Short-arm cast with padded aluminum splint incorporated into the cast. Hand is in position of function with finger flexed.



Figure 4.

Bennett's fracture.

duced by the coach, trainer, or team physician immediately. The finger can then be taped to the adjacent finger and the athlete can continue to play. It is important that an x-ray be obtained within the next few days to make sure that a fracture has not occurred also. The simple PIP dislocation usually occurs with the base of the middle phalanx being displaced dorsally in relation to the head of the proximal phalanx. When a fracture occurs through the base of the middle phalanx the dislocation is unstable — and if left unreduced can lead to permanent joint damage. When no PIP joint dislocation occurs with the base of the middle phalanx going volar to the head of the proximal phalanx, the extensor tendon mechanism is usually disrupted. This particular injury then must be treated as a boutonniere injury with the PIP joint being splinted in extension and active motion in the DIP joint for six to eight weeks and then range of motion started for all the joints. Failure to recognize this type of PIP joint dislocation from the usual simple type can lead to permanent limitation of joint function — namely the ability to extend the joint.³

Metacarpophalangeal joint dislocations of the thumb (Figure 6) are usually simply reduced and after three weeks of immobilization, motion can be started. The base of the proximal phalanx should be first hyperextended, then pushed over the end of the proximal phalanx (Figure 7).³

Metacarpophalangeal joint dislocations of the finger, unlike the thumb, are extremely difficult to treat. This is known as the “irreducible dislocation” (Figure 8). This dislocation can usually *not* be reduced closed and requires an open re-

duction by a surgeon familiar with the anatomy in that area. This patient (Figure 8) suffered this dislocation and had an attempted reduction under local at the game — followed by an attempt by another physician in another town under a



Figure 6.
Metacarpophalangeal joint dislocation of the thumb.



Figure 5.
Post-op open reduction and pinning of Bennett's fracture showing restoration of smooth joint surface.

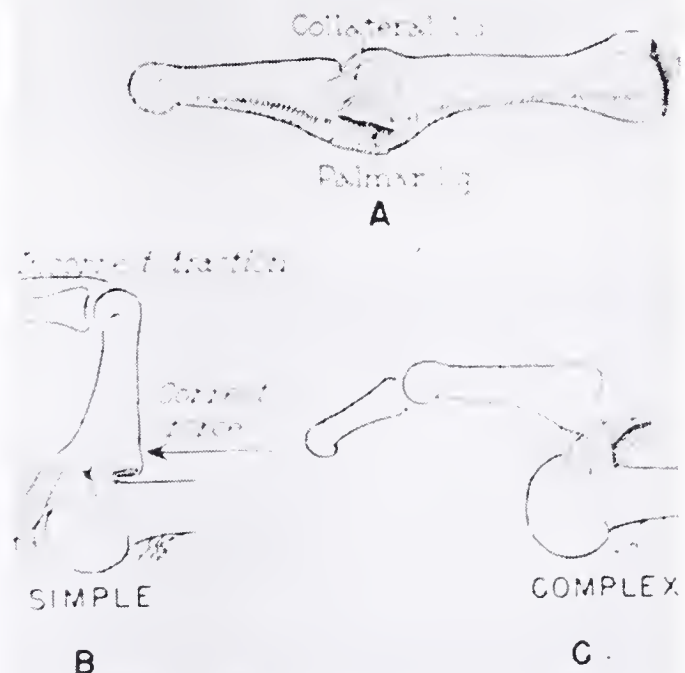


Figure 7.
Diagram of proper way to reduce metacarpophalangeal joint dislocation of the thumb. With the proximal phalanx hyperextended, the base of the proximal phalanx is pushed distal and over the end of the metacarpal.



Figure 8.
Metacarpophalangeal dislocation of the finger.

general anesthetic. The boy was then referred again at 1:00 a.m. because the reduction could not be accomplished by closed means.

Carpometacarpal joint dislocations can be stable or unstable depending on how much bone and soft tissue injury has occurred. With the articular surface of the base of the metacarpal split, the inherent stability is lost and requires open reduction and internal fixation. If a closed reduction is accomplished a short arm cast should be applied and post-reduction x-rays obtained.

SPRAINS

A sprain is a tear of a ligament which is defined as a structure stabilizing bone to bone. The sprain can be mild, moderate, or severe, depending on the extent of the ligament fiber tear. The most important part of the evaluation is to determine if the sprain is complete (severe) or not. This is determined by stressing the joint — under local anesthetic or block if necessary.

Most sprains will be mild and treatable with simple immobilization, such as a simple splint of aluminum, padded, or taping the finger to an adjacent finger. The proximal interphalangeal joint is probably the most commonly sprained joint in the finger and is usually mild or moderate. Occasionally with a PIP joint dislocation, as discussed earlier, the collateral ligament can be completely sprained and would need surgical repair.

An entity which deserves special consideration is the Gamekeeper's Thumb (Figure 9) or tear of the ulnar collateral ligament of the thumb. This occurs when the thumb is abducted away from the fingers by twisting the thumb, having a ball hit the thumb, or any number of other causes.

When the ulnar collateral ligament is torn, the ligament is usually blocked from returning to its normal position by the adductor aponeurosis and if left that way will never heal (Figure 10). The thumb if left that way will always be a problem to the patient — and there will be instability to pinch, hold large objects, open push-button doors, etc.⁴

When an athlete presents with pain and tenderness over the ulnar side of the MP joint of the thumb, he should be tested for stability including the stress x-ray. If possible, refer the



Figure 9.
Stress x-ray of Gamekeeper's thumb showing complete loss of stability of the ulnar collateral ligament of the MP joint — allowing the thumb to be easily displaced.



Figure 10.
Diagram of Gamekeeper's thumb showing that where the attachment of the ulnar collateral ligament is torn loose from the proximal phalanx, the adductor aponeurosis blocks it from returning to its original place.

athlete for repair of the ligament to an orthopaedic surgeon.

TENDON INJURIES

The most common tendon injury in athletics is the mallet finger (Figure 11). This is a disruption of the extensor tendon from its attachment on the dorsum of the base of the distal phalanx. The athlete knows exactly when the injury occurred and it usually is the result of a ball striking the end of the finger or jamming of the end of the finger against a stationary object. The end of the finger droops and he is simply unable to extend the DIP joint. An x-ray should be routinely made to make sure that a fracture has not occurred instead of just tendon avulsion. When the tendon is avulsed, treatment with a splint to keep the DIP joint extended is usually sufficient. The PIP joint should probably be splinted in flexion as well (Figure 12) for the first three weeks — then immobilize just the DIP for the next three weeks — but some surgeons feel that

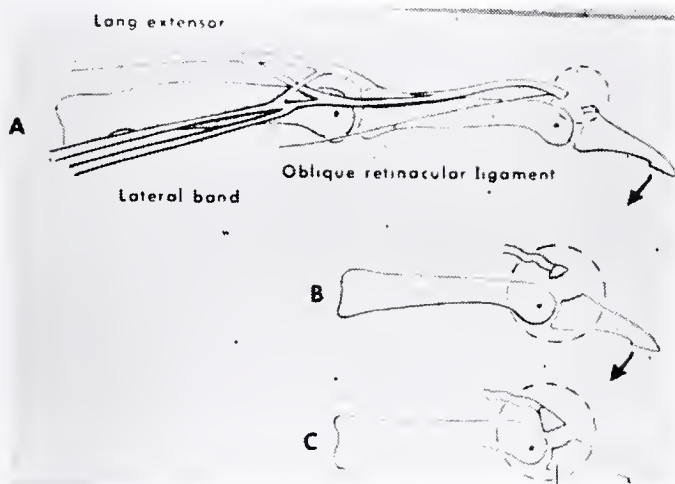


Figure 11.

Mallet injury diagram showing the avulsion of the attachment of the extensor tendon from the dorsal base of the distal phalanx. Fractures can also occur through the articular surface.



Figure 12.

Mallet injury being splinted in a padded aluminum splint with the DIP joint hyperextended and the PIP joint in flexion.

only the DIP joint need be immobilized. A minimum of six weeks is necessary to prevent the droop from recurring — and the most common mistake made is in discontinuing the splint too soon.

The boutonniere injury (Figure 13) is a disruption of the central slip attachment to the base of the middle phalanx. This results in a flexion deformity of the PIP joint which can be permanent. To prevent this, the PIP joint should be treated in extension for six to eight weeks at the same time encouraging active DIP joint flexion (Figure 14). The athlete presents with inability to extend the PIP joint and the significance should not be overlooked.

Another tendon injury which is rare — but is quite severe — is an avulsion of the profundus flexor tendon. This most often occurs when the athlete catches the end of a finger in another athlete's clothing or equipment and the finger is jerked strongly. The athlete then complains of pain along the flexor surface of the finger.

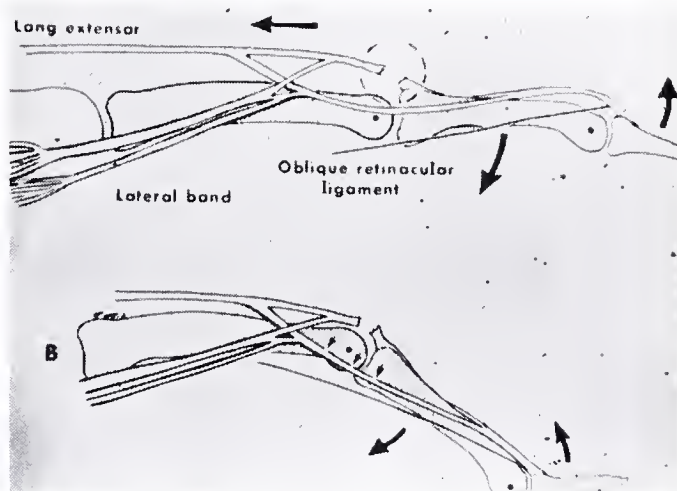


Figure 13.

Diagram of boutonniere injury showing avulsion of the central slip from the dorsal base of the proximal phalanx.

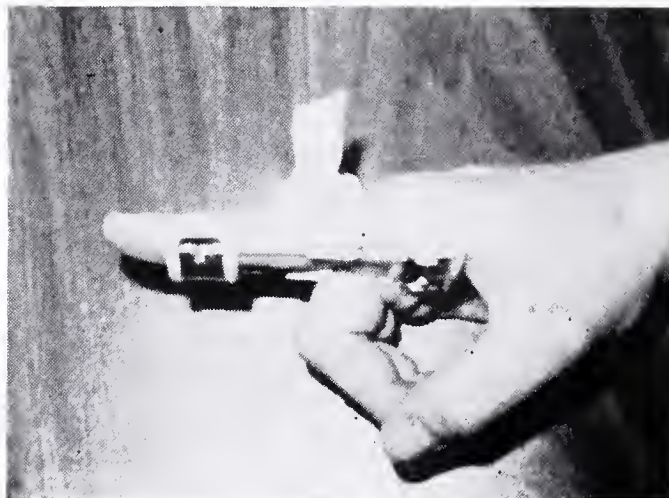


Figure 14.

Safety-pin splint used in treating the boutonniere injury — from H. Weniger Co., San Francisco.

The physical exam reveals tenderness and swelling along the flexor surface of the finger and complete loss of ability to flex the distal joint of the finger. If recognized early — within the first three weeks — the tendon can be reattached and normal function obtained.

LACERATIONS, PUNCTURE WOUNDS, AND BITES

Lacerations and puncture wounds should be treated as usual — but don't take short cuts. If the usual aseptic technique is not adhered to, the time will come when an infection will delay that athlete's return to action. Bites or tooth marks should be thoroughly and completely cleaned and left open, not sutured. Antibiotics should be used, in my opinion, with all bites, and the tetanus immunization status checked.

SUMMARY

All of us, as physicians, trainers, team doctors, or coaches, become excited during an athletic event, but we should take the time to check hand injuries carefully. I have emphasized that most injuries can be treated effectively by all physicians, some can be treated by the team physician only if special techniques are known, and some injuries should be referred to orthopaedic surgeons for the good of the athlete. It has been

my intent to describe the more common hand injuries and into which category they fall.

FIGURES

1. X-ray of Boxer's fracture.
2. Photograph of hand in cast with volar aluminum splint.
3. Diagram of Bennett's fracture.
4. X-ray of Bennett's fracture.
5. Post-op x-ray Bennett's fracture.
6. X-ray showing MP dislocation of the thumb.
7. Diagram of proper way to reduce thumb MP dislocation.
8. X-ray of MP dislocation of finger.
9. X-ray of Gamekeeper's thumb stress x-ray.
10. Diagram of Gamekeeper's thumb showing why reduction impossible.
11. Diagram of mallet injury.
12. Photograph of mallet finger being splinted.
13. Boutonniere injury diagram.
14. Safety-pin splint for boutonniere injury.

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EDITORIAL

Oxygen Transport

Alfred Kahn, Jr., M.D.

Finch and Lenfant (*New England Journal of Medicine*, Vol. 286, p. 407, Feb. 24, 1972) have reviewed oxygen transport in what is one of the best articles published on this subject. It is a valuable article because it integrates this information into a broad comprehensive overlook on this subject. Far too many medical articles in publications for the clinician consist of reviews of such a limited part of a system that it is difficult for the practicing physician to get the information into context with the "broad picture" of the subject.

Actually oxygen transport in man literally means the movement of oxygen from the atmosphere to its site of utilization in the cell, and the practicing physician is certainly well advised to regard it in this total concept when he looks at an anoxic patient. The anoxic defect could be the result of anything from a decreased partial pressure of oxygen in the environment to faulty chemistry in the recipient cell.

Finch and Lenfant state that under normal basal conditions, the lungs permit an oxygen uptake of 4 cc. of oxygen per minute per kilo of body weight. Oxygen uptake can be increased fifteen times above the basal level if necessary. They further point out that hemoglobin will stay saturated with oxygen over a fairly wide range of partial pressure whereas CO_2 partial pressure bears a fairly close relationship to CO_2 saturation. The response of the lungs is under nervous control. The blood which is oxygenated in the lungs is pumped to different tissues and the basal cardiac output is said to be about 4 L/M. The distribution of blood flow varies according to the body's need, as there are conditions in which there is not enough blood to supply all tissues simultaneously, similar to freight cars being shunted to an area of need in a time of scarcity.

Finch points out that some tissues as heart extract large amounts of oxygen and need a constant supply whereas the skin (the body's radiator) is a low remover of oxygen and can give up its supply in time of need. The shunting of blood is under nervous control depending on the body's need, for example, it would go to the skin for radiation. Hemoglobin concentration obviously affects oxygen transport; depending on the amount of oxygen that reaches the kidneys and can be extracted, the kidneys release a blood stimulating substance called erythropoietin. Erythropoietin's activity is said to be limited by the iron stores and its stimulating effect is said to be about twice the daily basal rate of red blood cell formation; thus the rate of change is slow. When the oxygen hemoglobin complex reaches the capillaries, hemoglobin releases the oxygen with minimal changes in the oxygen tension due to the nature of the oxygen dissociation curve, and this in turn is due to the physicochemical qualities of hemoglobin; Finch and Lenfant point out that oxygen release at tissue level is enhanced by hydrogen ions, carbon dioxide, and 2, 3 dephosphoglycerate (DPG). DPG has proved to be of great importance in the oxygen release system.

Finch and Lenfant state that the body's stores of oxygen comprise stores in the lungs and hemoglobin amounting to 20 cc. per kilo; thus the body's oxygen reserve runs out in two to four minutes if no oxygen enters the lungs and the tissue oxygen is used up in fifteen seconds if the arterial supply of blood is cut. Loss of tissue oxygen supply results in anaerobic metabolism and a host of other symptoms. The authors feel that the best yardstick of tissue oxygen is the mean venous oxygen tension (PVO_2); the pulmonary artery is the best area to sample. Different

tissues have different requirements for a constant oxygen supply and these requirements vary depending on physical conditioning, disease states, etc. Another parameter of oxygen usage is the arterio-venous oxygen difference; the normal is 5 vol % or 25% of the blood oxygen; a normal difference indicates a normal cardiac output. DPG is another yardstick which can represent oxygen status; when increased in most conditions, it means hypoxia.

Oxygen transport disorders, when viewed by the clinician, fall into categories. The authors' first group consists of disorders of oxygen loading as vascular shunts in the heart and lungs, pulmonary diseases, high altitudes, etc. These conditions are ordinarily associated with increased erythropoietin, DPG, and hematocrit levels of varying degrees.

Cardio-vascular disorders are a second clinical type of derangement of oxygen transport; an increased arterio venous oxygen level is a characteristic. The mechanisms for compensation include blood flow re-distribution and DPG increase. They cite shock as an example of acute oxygen transport failure due to cardio-vascular impairment; shock is associated with marked oxygen deficiency despite compensatory mechanism.

A third disease category which affects oxygen transport is that due to abnormalities in hemoglobin concentration. Anemia is an example and the compensation mechanisms consist of redistribution of blood and elevation to DPG; later cardiac output may increase. Polycythemia Vera is a disorder in which an excess of oxygen is transported — compared to tissue need.

Finch and Lefants fourth category are the disorders in hemoglobin affinity for oxygen. There are both inherited and acquired disorders of hemoglobin which alters its affinity for oxygen. Some of the former have specific amino acid pattern derangements, some are molecularly instable, some have abnormal glycolytic enzymes, etc. Stored blood is used as an example of acquired disorder of hemoglobin affinity for oxygen.

The authors' last group consists of abnormalities in cellular metabolism as physical activity, thyrotoxicosis, myxedema, etc.

All in all, Finch and Lenfant have not alone published an interesting and informative paper on oxygen transport, but the concept of presentation is admirable in that it tends to integrate the

facts about the transport of oxygen into an organized system.

THINGS

TO

COME

The Tenth Annual Arkansas Emergency Health Services Conference will be held June 29-30, at the Camelot Inn Convention Center in Little Rock. There will be programs for emergency medical technicians, nurses, and physicians. The physicians' program is entitled "Care of the Critically Injured." Programs are accredited by the American College of Surgeons, Committee on Trauma, American Academy of Family Physicians, American College of Emergency Physicians, Emergency Department Nurses Association and the National Emergency Medical Technicians Registry.

For additional information contact: The Arkansas Trauma Society, 550 Prospect Building, Little Rock, Arkansas 72207, (501) 661-1545, or Mr. Glen Acre, Bureau of Emergency Health Services, 4815 West Markham, Little Rock, Arkansas 72205, (501) 661-2239.

ANSWER—Electrocardiogram of the Month

ECG #1 shows atrial flutter with a 2:1 AV block. The ventricular rate is 150 per minute. It also shows a left bundle branch block pattern which would explain the QRS duration of 0.12 seconds. Junctional tachycardia and atrial fibrillation with aberrant conduction would be excluded because P waves can be identified. Ventricular tachycardia is unlikely because the patient, although symptomatic from congestive heart failure, is not unconscious or hypotensive. She also has a left bundle branch block which would be unusual for ventricular tachycardia. Paroxysmal atrial tachycardia cannot be completely excluded until viewing Trace #2, following carotid massage. This ECG demonstrates blocking of atrial flutter to a more advanced degree, somewhat variable but primarily to 3:1 AV conduction. The atrial rate is approximately 300 per minute and the ventricular rate approaches 100 per minute, as is well seen in Leads II, III, and AVL. An atrial rate greater than 250 would be more consistent with atrial flutter, whereas an atrial rate of 150-250 per minute would suggest paroxysmal atrial tachycardia.

MEDICINE IN THE



THE MONTH IN WASHINGTON

The fate of the plan for federal controls on hospital revenues may be decided shortly in a crucial Congressional arena—the House Ways and Means Subcommittee on Health.

The Subcommittee has before it the Administration's plan for a flat nine percent ceiling on hospital revenue increases and the proposal by Subcommittee Chairman Dan Rostenkowski (D.-Ill.) for a standby federal control plan if the voluntary effort fails. Many members of the Subcommittee are opposed to both approaches and the final vote may be close.

(The voluntary effort—VE—is a broad national program led by the American Hospital Association, the American Medical Association, and the Federation of American Hospitals that seeks to achieve significant reductions in the rate of increase in hospital costs over the next several years. It has a national steering committee and state-level committees in all but one or two states.)

Rostenkowski in a speech before the American Hospital Association's Annual Meeting had set forth his plan as a possible compromise that might secure the backing of health providers. He said the controls would take effect only if the voluntary effort to curb costs failed to reach its goal of a two percent drop in the annual rate of hospital revenue increases.

However, the AHA said the Rostenkowski plan "would have an adverse impact on the efforts already underway in the voluntary effort for hospital cost containment." "Furthermore," the Association said, "arbitrary caps on hospital revenues are tantamount to wage-price controls on one segment of an industry and, as such, are inequitable and administratively unworkable."

Rostenkowski had told the AHA that his subcommittee was evenly divided on the Administration's proposal for a flat 9 percent cap on all hospital revenue boosts and a limitation on capital expenditures. He said he would seek to push his standby plan as a possible way out of the impasse.

The AHA, however, sent a Washington alert to all members strongly opposing the Rostenkowski standby control plan.

The AHA contended in its alert that Rostenkowski's triggering mechanism for the revenue cap "could place the legislative controls in effect despite a successful voluntary effort. For example, the voluntary effort will be deemed to have failed even if the rate of increase in costs is reduced by four percent or more in the next two years, but the decrease is the sum of a greater than two percent reduction, the first year and a less than two percent reduction the second."

In later years "if the rate ever increases beyond the prior year level, no matter how small or how justified the increase might be (i.e. as a result of uncontrollable factors in the economy), the legislative revenue cap would go into effect."

The triggering mechanism, according to the AHA, "would destroy the incentive to reduce costs voluntarily. If hospitals in the aggregate reduced their costs as much as possible in one year, they could find it more difficult to cut as much the next. On the other hand, if hospitals limit their efforts in the first year, they probably would be in a better position to sustain their level of effort the following year. In other words, the provisions of the triggering mechanism would hamper efforts to reduce costs as rapidly as possible."

In addition, the triggering mechanism does not take into account changes in inflation or gross national product increases from year to year, according to the AHA. "The voluntary effort provides that its goal be adjusted in accordance with the changes in the rate of increase (inflation plus real growth) in the GNP," said AHA.

The Ways and Means Subcommittee is acting under time pressure caused by the new budget procedures in Congress. The full Committee must have ready by March 1 a statement on the budget impact of the legislation it is expected to approve this year.

At a Subcommittee meeting on the issue, Rep. Willis Gradison (R.-Ohio) said he was disturbed

that under the standby plan it would be August 15 of this year before hospitals knew exactly what the federal government had determined to be the "target" percentage on which to measure rate reduction goals under the voluntary effort. He challenged the staff assertion that the data could be gathered in a relatively simple manner, and said that variations in such items as depreciation and treatment of accrued costs could measurably affect a hospital's financial statement.

Gradison also complained that the Rostenkowski substitute no longer provided an exclusion for the 4,000 small hospitals which an earlier substitute contained.

The Ohio lawmaker questioned why the "trigger" for federal controls was mandatory and not discretionary. Rep. Omar Burleson (D.-Texas) suggested the Subcommittee exercise oversight authority to review voluntary effort progress and legislate later if needed.

* * * *

Congress is moving early on the controversial Health Planning Law which comes up for renewal this year. Sen. Edward Kennedy (D.-Mass.) and Rep. Paul Rogers (D.-Fla.) have introduced legislation to amend the law and the Administration has set forth its ideas on changes.

The three approaches are similar, generally strengthening the present law rather than diluting it. The three proposed bills all would subject expensive new equipment in physicians' offices to planning approval, the most significant change from the standpoint of physicians.

Appearing before the House Commerce Subcommittee on Health, officials of the American Medical Association urged a flat repeal of the Planning Law. If this can't be accomplished, AMA amendments shifting authority and responsibility for planning to the local level should be adopted, the witnesses said.

Testifying for the AMA were Frank Jirka, Jr., M.D., of Berwyn, Ill., and Vice Chairman of the AMA Board of Trustees; and Archie Johnson, M.D., of Raleigh, N. C.

Dr. Jirka told the Subcommittee that "health planning must be flexible enough to accommodate the different medical needs of various communities and of individual patients and thus to insure the availability of high quality medical care for all persons."

"This is achievable best by placing the plan-

ning authority and power at the local level and by insuring that those most directly involved in and have the basic responsibility for making decisions regarding the quality, distribution, and availability of services."

Rather than improve the planning program, most of the amendments submitted so far would "impose additional limitations and ration health resources," Dr. Jirka said.

Three major proposals in the planning amendment legislation introduced by Subcommittee Chairman Rogers "cause us deep concern" Dr. Jirka said. These would extend the certificate of need to physicians' offices, require states to develop a program to discontinue health services deemed to be inappropriate, and give the Health, Education and Welfare Department much tighter control over Title 16 (Health Resources Development) funds.

Broadening certificate of need to cover purchase of major medical equipment in physicians' offices would be a "dramatic extension" of the Planning Law that "could have long range unintended effects," the AMA official said.

Dr. Jirka noted that the National Commission on the Cost of Medical Care, an independent committee sponsored by the AMA, recommended that certificate of need extend to physicians' office equipment only if the program proves effective as a cost containment measure for hospitals and even then only to cover facilities or services duplicating those within institutions. Replacement equipment would be exempt.

Dr. Jirka continued: "There is as yet little evidence to support the notion that certificate of need results in significant cost-savings, even for those services presently covered. Until such evidence is compiled the extension of certificate of need as proposed would be inappropriate. Moreover, we all must recognize that cost considerations cannot be isolated from the necessity of maintaining quality."

The Rogers provision for discontinuance of health services deemed inappropriate under national criteria developed by the HEW Secretary poses the question of whether "HEW can better make decisions as to what services are needed in a community than the community itself," said Dr. Jirka. "Is Congress willing to gamble with the future health care in this country in the absence of any experience that may be gained

through presently unproven guidelines?" he asked.

Dr. Johnson urged Congress to require that specific percentages of practicing physicians be members of Health Systems Agency (HSA) governing bodies, state health coordinating councils and the National Health Planning Council.

The physician expressed strong opposition to amendments that empower the HEW Secretary to set maximum and minimum standards for local institutional health services, saying this "undermines any notion of community-based health planning."

"It would insure that HSA's would merely be the enforcement mechanism for planning decisions made by HEW," said Dr. Johnson.

The AMA is "extremely disappointed that none of the proposals being considered would reverse the aggrandizement of federal control," he declared. "In fact, certain recommendations would insure the Secretary's status of health care czar. This ever-increasing federal regulation of medical care is inimical to the best interests of patients."

Dr. Johnson insisted that health planning decisions be made locally. "Our proposals are aimed at restoring to local communities the decision-making power in health planning, and, more importantly, are specifically aimed at curbing excessive powers of the Secretary. We cannot emphasize enough the need at this time to realign the planning program by circumscribing excessive federal authority as a fundamental step in insuring a rational determination of need for health resources based on community and patient needs."

* * * *

At the direction of the government, health insurance carriers are mailing letters to the nation's physicians listing their total dollar Medicare business last year. Physicians have 30 days in which to review the figures and return them to the carrier with comments or changes.

The totals for all physicians will be available to the public at the offices of the carriers, the regional offices of HEW, and at Medicare's main office in Baltimore, MD.

The compilation is a follow-up of the decision by HEW last year to publish the names of physicians who did more than \$100,000 a year in Medicare business. HEW Secretary Joseph Califano said the "sunshine" laws regarding public

scrutiny of federal operations required public disclosure.

Under the new approach now being carried out, there is no \$100,000 cut-off. All Medicare total payments to physicians for the previous calendar year will be open to those seeking the specific information.

The physicians will receive the total payments to them under Medicare assignment as well as total Medicare payments to their patients not on assignment.

The cost of gathering such figures for the carriers is expected to run well over \$1 million, which the government will subsidize.

* * * *

Representatives from 17 state medical societies recently visited their Congressmen in Washington to give their views on important pending health bills in a one-day legislative blitz.

Fifty-five physicians, medical society executives and other officials took part in the visitation sponsored by the AMA.

The state delegations focussed their talks on the hospital cost containment and health planning measures now heading for crucial votes. The state officials reported Congressmen were eager to hear their views and welcomed the interchange.

States represented included California, Colorado, Connecticut, Florida, Illinois, Indiana, Louisiana, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia and West Virginia.

* * * *

The government has issued new rules requiring health maintenance organizations (HMOs) to make their services available and accessible around the clock, to operate on a fiscally sound basis, and to create governing bodies with more consumer representation.

In addition, the regulations cut the paperwork for Medicare and Medicaid patients who enroll in HMOs.

Joseph Califano, HEW Secretary, said the rules "constitute an important step in our drive to expand" HMOs.

"The new rules are designed to ease the administrative burden which HMOs have faced in the past in attempting to serve both Medicare and Medicaid patients," he said.

One change would reimburse HMOs that serve Medicare patients for the cost of insurance the

HMOs buy against catastrophic illnesses among their members.

* * * *

To see if laetrile has any documentable anti-tumor effects, the National Cancer Institute will collect medical records from cancer patients who have used the controversial drug.

Laetrile is now available in 14 states, and NCI officials hope data from the large number of patients thought to be using the drug will be decisive in deciding whether or not to proceed to clinical trials. Laetrile has failed to show a reproducible anti-tumor effect in at least a dozen animal trials.

According to NCI's Seil Ellison, M.D., the same criteria used in judging case reports of other cancer therapies will be used to judge laetrile. Cancer diagnosis in patients submitting records will have to be proven by biopsy, and objective evidence of anti-tumor effects will have to be shown by X-ray, scanning, physical examination, or other means.

NCI is interested in patients who used laetrile with or without metabolic therapy and chelating

agents now being advocated by laetrile proponents.

* * * *

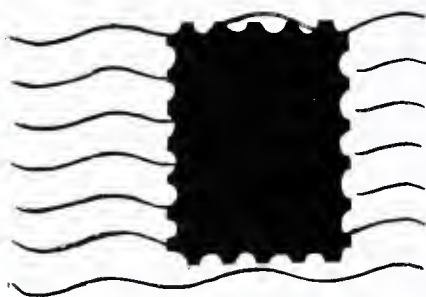
ALDERSGATE CAMPS EXPANDED

The Aldersgate Medical Camps have been expanded for the eighth annual sessions during 1978. There will be two Spina Bifida Camps, June 11 to June 17, and June 18 to June 24; Diabetic Camp, June 25 to July 1; Orthopedic Camp, July 9 to July 15; Lung Camp, July 16 to July 22; and the General Medical Camp, July 23 to July 29.

These are special dates for patients with medical problems who would be unable to attend a regular summer camp. Applications are accepted on a first come, first served basis.

Families who can, pay the full \$115 per week cost. Contributions are needed for the scholarship fund of campers whose families cannot pay the full fee. Additional information may be obtained by writing:

Aldersgate Medical Camps
2000 Aldersgate Road
Little Rock, Arkansas 72205



LETTERS TO THE EDITOR

Non-Medical Physicians?

R. Sloan Wilson, M.D.*

The reality of non-medical practitioners becoming physicians without a medical education, but through legislative decree, is now upon us. What were considered only idle threats just a few short years ago, now shake the very roots of

our present medical educational system. The same legislature which appropriates millions of dollars for the exacting and lengthy education of our State's future physicians is willing on the other hand, to give non-medical practitioners the right to practice medicine without spending one single hour in a medical school. Ironical as this might seem, it is true. There are many non-medical groups, each performing valuable services within the limits of their training. These include: chiropractors, podiatrists, psychologists, optometrists, audiologists, nurse-anesthetists, nurse-practitioners, radiation therapists, physical therapists, etc., etc. An important point to remember is that many of these groups do not work under medical supervision at any time. Not one of these groups comes even close to the educational and clinical experiences of a M.D., yet

*President, Arkansas Ophthalmological Society, 500 South University, Little Rock, Arkansas 72205.

some of these groups have their eye on becoming a primary point of entry into the health care system.

If the readers of this letter feel that their medical school, internship and residency training were a waste of time, then they should read no further. However, if they believe that their intense training and clinical experiences over many years helped to make them an educated and experienced physician, then they should read on.

This problem could be a far more serious threat to medicine and public health than even the malpractice crisis. After all, the malpractice problem is only about money and the rising cost of medical care, while the problem of non-medical practitioners practicing medicine is about endangering the public health through the lack of a medical education. In the past those who practice medicine without a license (implying a M.D. degree) could be punished by law. In the future, if our legislature continues its present trend, there will be little necessity for such a law.

Optometry, for the past several years, has been in the forefront of non-medical practitioners attempting to legislate themselves into the practice of medicine. This has been a national effort on the part of organized optometry to change state laws, thereby becoming ocular physicians by legislation rather than medical education. Eight short years ago the ophthalmologists in this state could not have imagined the things which now have become a reality through legislative efforts on the part of optometry. In 1971, the optometrists changed our Medical Practices Act by placing an amendment (Act 53) stating that ophthalmologists could no longer use assistants in their office as other physicians in the state. This so-called "Duffy" amendment remains on our Medical Practices Act today and efforts are under way to remove it. The Legislative Council of the Arkansas Medical Society has gone on record as supporting ophthalmology in its efforts. In the past several years organized optometry has been introducing bills to use diagnostic and therapeutic drugs. Arkansas had such a bill placed before the last legislative session (SB-48) and in spite of all efforts, it easily passed both the House and Senate, but, fortunately was vetoed by Governor Pryor, who in his wisdom, realized the danger to the public health by setting such a precedent.

In 1977, following such legislative intrusions

into the practice of medicine, the ophthalmologists of this state overwhelmingly agreed:

1. That such legislation endangers the public health
2. That we must:
 - a. Educate the public between medical and non-medical practitioners
 - b. Increase our political action
 - c. Work with other physicians who are experiencing similar intrusions
 - d. Work through the Arkansas Medical Society
3. Propose positive legislation.

In 1978, the Section on Ophthalmology of the Arkansas Medical Society adopted the "nickname" of the Arkansas Ophthalmological Society, along with an attractive logo which will be readily identifiable with our public educational efforts. Dues were substantially increased. A public relations firm, Sam Lusky Associates of Denver, Colorado, has been engaged. This firm successfully led similar campaign in other states. Mr. J. Craig Barnes, who heads a local firm, has been hired as our Executive Director.

In two well-attended meetings in the second week in March, the Arkansas Ophthalmological Society and their wives reviewed the upcoming public campaign and political strategies. Also, lively discussion centered around the Arkansas Medical Society's creation of a "Healing Arts Profession's Committee" to work for the upcoming malpractice amendment. There seemed uniform agreement that careful and cautious discussion should precede any invitation to include these non-medical groups (chiropractors, optometrists, etc.) into our malpractice efforts. The unofficial consensus of the ophthalmologists was not to include such non-medical groups.

All physicians should be warned that other non-medical groups are watching the optometric political efforts with eager anticipation and if optometry is successful, these other groups will continue to increase their efforts to become physicians through legislative action.

We, as ophthalmologists, are willing and able to share our experiences with other physicians and medical specialties who have similar intrusions into their medical practice. We solicit your understanding and support. Please direct your comments to Mr. Craig Barnes, Executive Director, Arkansas Ophthalmological Society, P. O. Box 2371, Little Rock, Arkansas 72201.



PERSONAL AND NEWS ITEMS

PHYSICIANS HAVE NEW OFFICES

The following DeQueen physicians have opened offices in the Town North Professional Building in DeQueen: Dr. Olie D. Brown, Jr., Family Practice; Dr. William L. Norwood, General Surgery; and Dr. Douglas E. Parkin, Pediatrics. The physicians were formerly associated with DeQueen Clinic.

DR. DILLARD SERVES ON BOARD

Dr. Daniel C. Dillard of Little Rock has been appointed to serve on the board of the Kidney Foundation of Arkansas. Dr. Dillard is associated with the Family Clinic in Little Rock.

PHYSICIANS ELECTED

Drs. Jack W. Harrison and A. D. Smith, Jr., of Texarkana, Arkansas, were recently elected to serve on the Texarkana School Board.

BAXTER COUNTY OFFICERS

The Baxter County Medical Society has elected Dr. Francis Brian of Mountain Home president for 1978. Dr. Arthur L. Beard was re-elected secretary-treasurer, and Dr. John F. Guenthner was re-elected delegate.

DR. HAMMONS ATTENDS SYMPOSIUM

Dr. Edward P. Hammons of Forrest City recently attended a post-graduate symposium in emergency medicine at Johns Hopkins University in Baltimore, Maryland. Dr. Hammons is in Family Practice and is also the coordinator of the Forrest City Advanced Emergency Technicians program. He teaches paramedic classes at East Arkansas Community College in Forrest City.

DR. JANSEN ELECTED

Dr. G. Thomas Jansen of Little Rock was recently elected to serve as a member of the Executive Committee of the American Academy of Dermatology's Advisory Board Council. Dr. Jansen will serve for three years.

DR. CRUMPLER ATTENDS MEETING

Dr. Joe Crumpler of Millard-Henry Clinic in Russellville recently represented the Arkansas

Chapter members of the National Young Surgeons convention in Chicago, Illinois. The group is an affiliate of the American College of Surgeons.

PHYSICIANS HONORED

Dr. Ben Pupsta of Clarendon and Dr. Herd E. Stone of Holly Grove, recently were honored for outstanding service to their patients and their communities as a whole. They are both in general practice.

DR. CITY SPEAKS

Dr. Jim C. City of Searcy recently spoke to a Searcy women's organization. His subject was "Abortion, Is It Right?" Dr. City is in Family Practice at the Searcy Medical Center.

DR. EDWARDS REAPPOINTED

Governor David Pryor reappointed Dr. Hugh R. Edwards to the State Medical Board. Dr. Edwards will serve for eight years and will represent the old Second Congressional District.

PHYSICIAN LOCATES IN BATESVILLE

Dr. Sam Turner, an Anesthesiologist, has established his practice in Batesville. His address is 3085 Alice Drive. Dr. Turner had been in practice in Tulsa, Oklahoma, for twenty-four years prior to moving to Arkansas.

DR. BENAFIELD SPEAKS

Dr. Robert Benafield, who is associated with Arkansas Blue Cross-Blue Shield in Little Rock, recently spoke to the Faulkner County Teachers Association in Conway. Dr. Benafield spoke on health care for the elderly.

DOCTORS PARTICIPATE IN SEMINAR

Dr. Jim J. Moore, a Little Rock Neurosurgeon, and Dr. Harold H. Chakales, a Little Rock Orthopaedic Surgeon, participated in the second annual statewide seminar dealing with the practical application of the Arkansas' Workers Compensation Act. The meeting was held in Little Rock and was sponsored by the Arkansas Bar Association. Drs. Moore and Chakales discussed their individual roles in injury cases.



NEW MEMBERS

DR. MINH QUANG LE

Dr. Minh Quang Le has been accepted into the membership of the Arkansas County Medical Society. Dr. Le was born in Dalat, Vietnam, and received his medical degree from the Saigon Medical School in South Vietnam in 1975. He completed his internship in 1977 at the University of Arkansas College of Medicine, and began General Practice in Des Arc in November of 1977. Dr. Le has his office on Erwin Street.

DR. VAN MINH NGUYEN

The Arkansas County Medical Society has added Dr. Van Minh Nguyen to its membership roll. Born in Vietnam, Dr. Nguyen was graduated from the Saigon Medical University in South Vietnam in 1975. Upon completion of her internship at the University of Arkansas Medical Center in October 1977, she began General Practice in Des Arc.

BENTON COUNTY

The Benton County Medical Society has increased its membership with four new members. They are:

DR. FAY W. BOOZMAN, III, who was born in Fort Smith. He received his pre-medical education at Hendrix College in Conway, and Tulane University of Louisiana in New Orleans. In 1971, Dr. Boozman was graduated from the University of Arkansas College of Medicine. He continued at the University Medical Center for his internship and was a resident physician in pediatrics at the Center until 1973. In 1977, he completed an Ophthalmology residency at the Center. Dr. Boozman is board certified by the American Board of Ophthalmology.

Dr. Boozman is a major in the Arkansas Air National Guard and is currently the Flight Surgeon of the 188th TAC Fighter Group in Fort Smith.

Dr. Boozman has established the Boozman Eye Clinic at 1105 West Chestnut in Rogers.

DR. C. WILLIAM HOF, who was born in Pomona, California. Dr. Hof received his B.A. degree from the University of California, Santa Barbara, in 1969. He was graduated from the University of Arkansas College of Medicine in 1973. His Ophthalmology residency training was received at the University of Arkansas. Dr. Hof was previously in practice at Elizabeth City, North Carolina. He is board certified and is specializing in Ophthalmology at 105 South 12th in Rogers.

DR. JOHN A. HUSKINS, who is a native of Anderson, Missouri. Dr. Huskins received his B.A. degree from Hendrix College, Conway, in 1970. He was graduated from the University of Arkansas College of Medicine in 1974. He served his internship at the Baptist Medical Center in Little Rock and participated in the Area Health Education residency program in Fayetteville.

Dr. Huskins is in General Practice at 1040 West Walnut in Rogers.

DR. TERRY J. SWAIM, who was born in St. Paul, Arkansas. Dr. Swaim received his pre-medical education at the University of Arkansas and was graduated from the University of Arkansas College of Medicine in 1953. He served a rotating internship at Hillcrest Medical Center in Tulsa, Oklahoma. Dr. Swaim served in the United States Air Force for twenty-one years, and in 1971, he completed a three-year radiology residency at the University of Arkansas Medical Center. Dr. Swaim has served at Wilford Hall—Lackland Air Force Base Hospital in Texas; Offut Air Force Base in Omaha, Nebraska; Wright-Patterson Air Force Base Hospital in Dayton, Ohio; Bitburg Air Force Base Regional Hospital in Germany and Eglin Air Force Base Regional Hospital in Florida. Dr. Swaim served as chairman of the Department of Radiology at Wright-Patterson Air Force Base Hospital Medical Center and was radiology consultant to the Surgeon General of the U.S.A.F. He was consultant to the National Aeronautics and Space Administration Sky Lab III. Dr. Swaim is the Hospital Commander at the Little Rock Air Force Base. He is board certified by the American Board of Radiology, and is associated with Rogers Memorial Hospital.

DR. TALLURI SITA DEVI

The Jefferson County Medical Society has accepted Dr. T. Sita Devi into its membership. Dr. Devi is a native of Sitaramapuram, India. She received her pre-medical education in India, and was graduated from the Andhra Medical

College, India, in 1959. Dr. Devi received her internship training in India and at Perth Amboy General Hospital in New Jersey. Dr. Devi received residency training in India from 1961 until 1962, and she was in residency at Cleveland Metropolitan General Hospital, Ohio, from 1971 until 1973. She is board certified by the American Board of Obstetrics-Gynecology.

Dr. Devi practiced previously in Ramachandra Puram, India, for five years, Hyderabad 32 for fourteen months, and Chicago, Illinois, for two and a half years prior to locating at 1608 West 42nd in Pine Bluff, where she specializes in Obstetrics-Gynecology.

DR. PARTHASARATHY VASUDEVAN

The Phillips County Medical Society has accepted Dr. Parthasarathy Vasudevan into its membership. Dr. Vasudevan is a native of Kuala Lumpur, Malaysia. He received his pre-medical education at St. Joseph's College, Tiruchi, India, and in 1963 he was graduated from Madurai Medical College of India. He interned at the Government Erskine Hospital, Madurai, India, and in 1974 Dr. Vasudevan completed his surgical internship at the Jewish Memorial Hospital in New York City. He completed a three year Urology residency at New England Medical Center in Boston, Massachusetts, in 1977.

Dr. Vasudevan is in the practice of Urology at 633 Oakland Avenue, Helena.

PULASKI COUNTY

The Pulaski County Medical Society has added the following new members to its membership roll:

DR. GARY D. DAVIS, who is a native of Mena, Arkansas. Dr. Davis graduated from Hatfield High School in 1963, and received his pre-medical education at the University of Arkansas in Fayetteville. In 1971 he was graduated from the University of Arkansas College of Medicine, and completed internship and residency training through the Pensacola Educational Program in Florida in 1977. Dr. Davis is an Obstetrician-Gynecologist and has his office at the Medical Tower Building, Suite 800, in Little Rock.

DR. GEORGE W. FORD, who was born in DeRidder, Louisiana. He received his B.A. degree from Rice University in Houston, Texas, in 1949, and in 1953 he was graduated from the University of Texas Medical Branch, Galveston, Texas. He interned at Robert B. Green Me-

morial Hospital in San Antonio, Texas, and from 1956 until 1961 he was in General Surgery residency training at Brooke General Hospital, San Antonio. Dr. Ford received a Masters of Arts degree from Baylor University, Waco, Texas, in Health Care Administration in 1972.

He has held teaching appointments at the Academy of Health Sciences, San Antonio, Texas, and was an Associate Professor at Baylor University and Louisiana College. Dr. Ford practiced in Texas and Louisiana prior to becoming associated with the Teletype Corporation in Little Rock.

DR. JOHN R. HAMPTON, who is a native of Little Rock. Dr. Hampton received his B.A. degree from Hendrix College in Conway in 1964, and was graduated from the University of Arkansas College of Medicine in 1968. He completed his internship at the Medical College of Virginia in Richmond. Dr. Hampton had two years Internal Medicine residency training at Keesler Air Force Base Medical Center in Mississippi, which he completed in 1973, and in 1975 he completed training in Pulmonary Disease at the University of Arkansas Medical Center.

Dr. Hampton is board certified in both Internal Medicine and Pulmonary Diseases by the American Board of Internal Medicine. He is associated with Dr. William L. Mason in the practice of Pulmonary Disease at 500 South University, Little Rock.

DR. NICHOLAS P. LANG, who was born in Jonesboro. Dr. Lang received his pre-medical education at the University of Arkansas, and in 1973 he was graduated from the University of Arkansas College of Medicine. His internship and residency training in General Surgery was completed at the University of Arkansas Medical Center in 1977.

Dr. Lang is associated with the University of Arkansas College of Medicine as Assistant Professor of Surgery.

DR. FREDERICK R. LEVIN, who is a native of Baltimore, Maryland. Dr. Levin received his B.A. degree in 1966, at Johns Hopkins University, Baltimore, and his M.D. degree in 1970 from Johns Hopkins University School of Medicine. He completed his internship at Stanford University Medical Center, Stanford, California. Dr. Levin received two years Pediatric residency

training at Children's Hospital, Boston, Massachusetts, which he completed in 1975.

Dr. Levin specializes in Pediatrics at 500 South University, Little Rock.

DR. R. HARLAN STRUBLE, JR., who was born in Palm Beach, Florida. Dr. Struble was graduated from Baylor University, Waco, Texas, with a B.A. degree in 1966, and in 1972 he was graduated from the Medical College of Virginia, in Richmond. He remained at the Medical College of Virginia for his internship. Dr. Struble received his residency training in Obstetrics-Gynecology at Charity Hospital, Tulane University, New Orleans, Louisiana, and the University of Arkansas Medical Center.

Dr. Struble specializes in Obstetrics-Gynecology at 270 Medical Towers Building in Little Rock.

DR. PAUL C. WHITE, JR., who is a native of Macon, Georgia. Dr. White graduated from the Mercer University, Macon, Georgia, in 1950 with a B.A. degree. In 1960 he received his M.D. degree from Emory University School of Medicine in Atlanta, Georgia. His internship was served at the United States Naval Hospital in Charleston, South Carolina, and he completed two years Preventive Medicine residency training with the United States Navy, Washington, D.C., in 1963. Dr. White is board certified by the American Board of Preventive Medicine. He is associated with the Arkansas State Department of Health at 4815 West Markham in Little Rock.

DR. CHARLES R. GOSNELL, who is a resident member. Dr. Gosnell was born in Tahlequah, Oklahoma, and received his pre-medical education at Northeastern Oklahoma State College in Tahlequah. He is a graduate of the University of Oklahoma School of Medicine and is a radiology resident at the University of Arkansas Medical Center.

DR. NATHAN L. DODD

Dr. Nathan L. Dodd has been accepted into the membership of the Sevier County Medical Society. He is a native of Fort Smith, received his B.A. degree from Hendrix College in Conway in 1966, and his M.S. degree from the University of Arkansas in 1968. In 1972 Dr. Dodd was graduated from the University of Arkansas College of Medicine and interned at the University of Arkansas Medical Center. In 1976 he completed his Pathology residency training at the Medical Center and was a teacher in the Department of

Pathology at the University of Arkansas College of Medicine for fifteen months.

Dr. Dodd has served as an Assistant State Medical Examiner and has been in practice in DeQueen since June 1977, specializing in Pathology.

WHITE COUNTY MEDICAL SOCIETY

The White County Medical Society has added the following new members to its membership roll:

DR. RONNIE D. RASBERRY, who was born in Black Oak, Arkansas. He received his Bachelor of Science degree from Arkansas State College in 1965, and in 1969 he was graduated from the University of Arkansas College of Medicine. Dr. Rasberry completed his internship at John Peter Smith Hospital in Fort Worth, Texas. He entered the United States Navy in 1970 and was in General Practice at the Naval Dispensary in Mayport, Florida, and at the Naval Regional Medical Center in Jacksonville, Florida, from 1970 until 1973. He completed three years Dermatology residency at the Navy Regional Medical Center in San Diego, California, in 1976. Dr. Rasberry served as chief of Dermatology Service and regional consultant, Eighth Naval District, at the Navy Regional Medical Center, Corpus Christi, Texas, from 1976 until 1977.

Dr. Rasberry specializes in Dermatology at 2223 East Race in Searcy.

DR. JOHN K. SANDERS, who is a native of Houston, Texas. Dr. Sanders was graduated from the University of Houston, Texas, with a B.S. degree in 1968, and from the University of Texas Medical Branch in Galveston in 1972. Dr. Sanders completed his internship at St. Joseph Hospital, Houston, and also completed his General Surgery residency training there. He is associated with the Searcy Medical Center at 2900 Hawkins Drive, where he specializes in General Surgery.

DR. BOB W. SMITH, who was born in Little Rock. Dr. Smith received his pre-medical education at Central State College, Edmond, Oklahoma, and the University of Central Arkansas, in Conway. He was graduated from the University of Arkansas College of Medicine in 1966, and completed internship training at the University of Oklahoma Hospitals. Dr. Smith served in the United States Air Force from 1966 until 1972. He practiced in Conway and Jonesboro for a year after his discharge from the Air Force, and

then entered a three-year Neurology residency at the University of Arkansas Medical Center, which he completed in 1977. He entered private practice in Fayetteville prior to relocating in Searcy, where he specializes in Neurology and Family Practice at 1407 East Race.

DR. ARTHUR F. HOGE

The Washington County Medical Society has accepted Dr. Arthur F. Hoge into its membership. Dr. Hoge was born in Fort Smith and received his pre-medical education at Tulane University of Louisiana, New Orleans, where he received a B.S. degree in 1945. He was graduated from Tulane University School of Medicine, New Orleans, in 1949. Dr. Hoge served his internship at University Hospital in Baltimore, Maryland, and in 1952 he completed a year's residency training at Bon Secours Hospital in Baltimore, Maryland. He served in the United States Army for two years, and upon discharge in 1954 he entered residency training at Bon Secours, which he completed in 1956. Dr. Hoge practiced in Fort Smith from 1956 until 1971, when he began a three-year residency training program in Oncology at the University of Oklahoma, Oklahoma Medical Research Foundation. After completion of this residency, Dr. Hoge continued at the Foundation until 1978 when he relocated in Fayetteville, Arkansas.

Dr. Hoge has been Assistant Professor of Research Medicine at the University of Oklahoma and the Oklahoma Medical Research Foundation Association. He specializes in Oncology at 2100 Green Acres Road, Fayetteville.

DR. EVA W. LITTON

Dr. Eva W. Litton has been accepted into the membership of the Washington County Medical Society. She was born in Nurnberg, Germany, and received her pre-medical education at the University of Erlangen, Germany. In 1952 Dr. Litton received her M.D. degree from the Medizinische Akademie in Dusseldorf, Nordrhein-Westfalen, Germany. She completed her internship training at the Methodist Hospital in Dallas, Texas. Dr. Litton was in residency training at St. Mary's Hospital, Rochester, New York, from 1955 until 1956; from 1956 until 1957, St. Paul's Hospital, Dallas, Texas; and at the University Hospital, Augusta, Georgia, 1957 until 1958. She is certified by the American Board of Pathology.

Dr. Litton began practice at St. Mary's Hos-

pital, Rhinelander, Wisconsin, and the Sacred Heart Hospital, Tomahawk, Wisconsin, in 1961. In 1962, Dr. Litton began serving Langlade Memorial Hospital, Antigo, Wisconsin. She increased her coverage of hospitals in this area to include Eagle River in 1967, and the Howard Young Medical Center in Woodruff, Wisconsin, in 1974.

Dr. Litton is a Pathologist at the Washington Regional Medical Center in Fayetteville.



BOONE COUNTY'S DOCTORS' DAY

The Boone County Medical Society Auxiliary honored their spouses this year with a progressive dinner which was held in the homes of Dr. and Mrs. Thomas Simpson, Dr. and Mrs. Jean Gladden, and Dr. and Mrs. Charles Ledbetter, all of Harrison.



DR. COY C. KAYLOR

Dr. Coy C. Kaylor, a Fayetteville Orthopaedic Surgeon, died March 14, 1978, in a Tulsa, Oklahoma, hospital. Dr. Kaylor was born in Dutton, Arkansas, on May 17, 1911, and received his medical degree from the University of Arkansas College of Medicine in 1940. He served his internship at St. John's Hospital in Fargo, North Dakota, and his residency training in Orthopaedic

Surgery at Nashville General Hospital, Nashville, Tennessee, and returned to St. John's Hospital in Fargo for a Fellowship with Dr. Harry Fortin.

Dr. Kaylor was one of the first specialists in Northwest Arkansas, when he located in Fayetteville in 1949. He was the team physician for the Arkansas Razorback football team for many years and served as chief of staff at both Fayetteville hospitals. Dr. Kaylor was a member of the American Academy of Orthopedic Surgeons. He had

served on the Board of Governors of Washington Regional Medical Center and was a member of the board of directors of the Fayetteville Chamber of Commerce. He was active in many social and civic organizations and was a flight surgeon in the Army Air Force during World War II, serving in the European Theater.

Dr. Kaylor is survived by his wife, Carol Miller Kaylor, and two sons, Coy C. Kaylor, Jr., and Michael S. Kaylor, both of Fayetteville.



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